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ABSTRACT

This guide contains 20 classroom activities designed by teachers to study topics in geography with the eventual goal of aiding in the development of geographic literacy in students. The various activities involve map reading skills, climatology, current events, urban development, and community planning. Each activity presentation includes an event description, learning outcomes, essential elements in the activity, fundamental geographic themes covered, learning opportunities in related disciplines, classroom procedures, continuing/extended activity suggestions, an evaluation plan, and required materials and references. Sample maps and exercise sheets are included. (PPB)

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Discovering Geography

Teacher-Created Activities for
High School and Middle School

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Discovering Geography

*Teacher-Created Activities for
High School and Middle School*

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Department of Geography and Planning
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1988

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J.F.P.
San Marcos, Texas, 1988

Table of Contents

Introduction	1
James F. Petersen	
 The Gang of Fourteen:	
A Game for Learning About World Climates	3
Rick Montgomery, Peggy Weyel, Roger Sullivan	
 Putting Current Events on the Map	 11
Linda Frederickson, Jim Selby	
 Comparing Maps and Globes	 17
Bert Bonnacarrere, Cyndi Krueger, Jane Maler, Jerry Wright	
 The Search for Mayan Treasure	 25
Nancy Crockett, George R. Legg, Debi Elliott, Melissa Kraft	
 Where Did I Come From . . . How Did I Get Here?	 31
Bert Bonnacarrere, Cyndi Krueger, Jane Maler, Jerry Wright	
 Three Models of Urban Development, or--	
Is there a Pattern to the Growth of San Antonio, Texas?	39
Rick Montgomery, William Frederickson, Roger Sullivan, Peggy Weyel	
 Community Planning	 45
Jo Beth Oestrich, Jim Selby, Patty Taylor, Peter Walker	
 Discovering How Cities Function:	
An Urban Geography Field Trip	49
Marty Bock, Sandra Allen, Webster Averyt	
 Zoogeography at the Zoo:	
A Geographical Field Trip	55
Melissa Kraft, Nancy Crockett, George Legg, Debi Elliot	

African Scramble	65
Deborah Allen, Debra Baker, Terry Pittsford, Jerry Shipley	
ABC's of Africa	75
Cam White, Jake Ritzen, Joy Scharf, Frederica Kinnard	
Rivers of Africa	79
Rick Montgomery, Roger Sullivan, Peggy Weyel	
Exploring Africa	83
Marty Bock, Sandra Allen, Webster Averyt	
African Treasure Hunt	89
Linda Frederickson, Julie Goos, Charles Shaw, Bonnie Johnson	
Africa in Jeopardy	95
Debi Elliott, Bill Frederickson, Fredrica Kinnard	
World Rally	101
Mary Ann Fine, Janice Ideus, David Taylor	
Red Squares	109
Mary Ann Fine, Janice Ideus, David Taylor	
Climatic Pursuit	113
Cam White, Jake Ritzen, Joy Scharf, Frederica Kinnard	
Comparing Climates	117
Mary Black, Gary Deane, Genelle Parra, Brenda Forshage	
The Equatorial Doldrums	123
Gary Deane, Mary S. Black, Brenda Forshage, Genelle Parra	
Activities by Subject	127

Introduction

James F. Petersen

These are exciting times in the world of geographic education. After numerous reports in the national media that students in the United States had an alarmingly deficient knowledge of geography, the question was why? Evidence pointed to a long-term neglect of this once time-honored component of education. Efforts to strengthen and renew our emphasis on geography as a basic subject in the schools of this country are rapidly expanding. The **National Geographic Society** has launched a ten year program to build a network of state **Geographic Alliances**, designed to remedy the problem. The major strategies of this program are to promote awareness of geography's importance to education, develop a partnership between school teachers and university professors of geography, and to conduct summer institutes to develop secondary and elementary teachers' skills in geographic education.

This collection of twenty teaching activities is a product of one of the first of these teacher-training institutes, held in the **Department of Geography and Planning at Southwest Texas State University** in San Marcos, Texas during the summer of 1987. Teachers attending this institute worked together in small groups with the goal of developing effective lessons for teaching geography. Lesson plans were designed to "update" geography teaching activities with recent developments in the field of geographic education and state-mandated "essential elements" for teaching geography in the public schools of Texas. In creating these activities, several specific criteria were followed:

1. The lesson plans and the summer institutes were based on the latest thinking about the framework of geographic education. An important goal was introducing teachers to "The Five Fundamental Geographic Themes," from the **Guidelines for Geographic Education**, an increasingly influential document that forms a core for the national reform movement in geographic education in the United States. The *Guidelines* are a product of a cooperative effort between the National Council for Geographic Education and the Association of American Geographers, two major professional geography organizations.

2. The summer institutes and activities of the Texas Alliance for Geographic Education are tailored to the "essential elements" of the Texas State Curriculum in the social studies. Each lesson plan includes a list of the Texas essential elements addressed in the activity. Teachers who use these lessons will find easy reference to the pertinent essential elements.

3. The activities produced by participating teachers emphasize critical skills for learning and using geography. In an age of satellite communication where the world is brought instantly to our living rooms each evening, a global perspective is more important than ever for our students, who someday will be competing in an international marketplace.

The activities stress not only the learning of geographic knowledge, but also development of important skills.

4. The activities offer students an opportunity to study geographic topics, not in isolation, but in conjunction with other related subjects, including history, government, economics, English, art, mathematics, and science. Geography is involved with the location and distribution of many different types of phenomena, and is by nature an integrative subject. Geography, while offering a unique place-location (spatial) perspective, both supplements and is supplemented by many other school subjects.

These activities are designed to be ready to use, and emphasize hands-on, active participation by students. The lesson plans should also suggest possibilities to creative teachers who wish to "customize" these models for their own needs and the requirements of their students. For example, many of the activities that concern a specific region (such as Africa here), provide a general model that can be adapted to fit other continents and geographical regions. Many types of learning strategies are employed in this collection, from simulations and games, field experiences, critical skill development (particularly map and graphic skills), and activities that can be adapted to either group or individual efforts. By examining the approaches used in this collection it is hoped that teachers will not only use these examples, but modify them to fit their particular needs. This set of activities is the beginning of a journey, not the final destination. Like all journeys, whether local, or global, the trip is a series of small steps. This collection of example teaching activities represents one step in the direction of our destination-- geographic literacy for students in Texas and in the United States.

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The Gang of Fourteen: A Game for Learning About World Climates

Rick Montgomery
Peggy Weyel
Roger Sullivan

Description:

This game helps students learn about world climate types, climatic data, climographs, and climatic classification in an interesting and engaging manner. Students will try to "round up" a gang of spies located in 14 cities around the world. Fourteen sets of clues, one for each city, will help the student find the location. This spy ring, known as "The Gang of Fourteen," has placed a large bomb in a fifteenth city. None of the 14 spies knows the location of the bomb, but each has a partial clue to its whereabouts. Each time the students find one of the Gang of Fourteen, they receive that spy's information about the city where the bomb is located. Teams of students work to solve this problem of international espionage, and the first group to correctly locate the bomb is the winning team.

Learning Outcomes:

1. The student will demonstrate knowledge of the Köppen system of climate classification, and the controls of climate, by using this information to determine place locations.
2. The student will be able to locate places through analyzing climatic data shown on a climograph.
3. The student will be able to read and interpret a climograph.
4. The student will be able to locate places through the longitude and latitude coordinate system.

Essential Elements; World Geography Studies, Grades 9-12:

- 1B explain geographical terminology
- 1C describe geographical tools and methodologies
- 2C describe the physical setting of selected regions

Fundamental Geographic Themes:

Location
Place

Related Learning Opportunities:

Math
History
Current Events
Earth Science

Classroom Procedures:

Successful student participation requires previous knowledge and mastery of several basic geographical skills. To play, students must be able to locate a place by longitude and latitude, and to interpret climatic station data displayed on a climograph, a graph of annual temperature curves and

monthly precipitation totals. Students use Goode's World Atlas, pages 8 and 9, for a description of world climatic types, and to assist in place location. It is not necessary for students to memorize Köppen's system, as a description of world climatic types and climatic controls will be sufficient for students to compete in this activity. The teacher should group students as necessity dictates. Groups of three students work well.

Read the following set of instructions to the students:

1. "Your group is trying to locate a bomb placed in an unknown city by the Gang of Fourteen, a notorious spy ring."
2. "No spy knows the precise location of the bomb, but each spy in the Gang of Fourteen has a partial clue to its location."
3. "I will now give you a set of climographs which will help you locate members of the spy ring." Note: Teacher now hands out the climographs.
4. "Each set of clues I will read refers to one of the cities featured on these climographs." Note to teacher: Write all sets of clues, numbered 1-14 on the blackboard before class begins. Cover them with maps or paper and reveal the clues one at a time. An overhead transparency of the clues will also work well.
5. "A set of clues will be revealed every 3 minutes. Your group may work on any set of clues in any order."
6. "As soon as your group can correctly match a set of clues to one of the cities listed on the sheet of climographs, write the name of the city along with the clue set number on a sheet of paper, and present it to me."
7. "If you have correctly identified the city, then you have captured the member of the Gang of Fourteen hiding in that location and that the spy has revealed his/her information about the location of the bomb to you."
8. "I will write the spy's information on your paper sheet and return it to you. Be sure that no other group gets access to this secret information."
9. "If you think that your group can correctly identify the city in which the bomb is located, write the name of the city on a sheet of paper and bring it to me at any time during the game. There is no penalty for an incorrect guess. The first team to correctly identify the city in which the bomb is located wins the game." **Reminder to teacher: the bomb is not in any of the cities listed on the climographs.**
10. "Each group should now make sure that they have Goode's World Atlas and scratch paper available."
11. "I will now reveal clue number one and will reveal a new set of clues at three minute intervals."

Note to teacher: No attempt has been made to equalize levels of difficulty among the clue sets. Some of the clues many prove to be challenging. It is intended that once sets of clues have been revealed, they will be available to groups until the activity ends. The clues have been provided on separate pages to allow teachers to make copies and cut out each set to distribute, instead of revealing clues on the board. If students identify the city represented by the clue set, they have "captured" the Gang of Fourteen member hiding in that city. As a reward, you will give them the spy information associated with the appropriate clue set. **Answer:** The spy information will lead the winning team to find the **hidden bomb in Casablanca, Morocco.**

Materials:

1. Goode's World Atlas
2. Page of prepared climographs
3. Student notes describing how to interpret climographs.
4. Optional: duplicated sets of clues which the students use as instructed.

Evaluation:

Students can be evaluated on their success or failure in determining correct locations. In cases where a set of data does not sufficiently discriminate between two locations, students can be evaluated as successful if they can justify their response.

References:

Espenshade, Edward B., Jr., Ed., 1987, Goode's World Atlas, Rand McNally, New York.

Clues to Finding the Gang of Fourteen

Set # 1

1. The city is located between 40° N and 50° N, elevation is over 1000 ft.
2. Rainfall (precipitation) is less than 30 inches per year.
3. Temperature range is from about 20° F (low) to almost 80° F (high).
4. Climate is Humid Continental with a warm summer.

Set # 2

1. Site is located in the western hemisphere, below 1100 feet elevation.
2. Rainfall in June averages almost 4 inches.
3. Temperature averages 50° F in October.
4. Climate is Midlatitude Steppe.

Set # 3

1. Located between 25° N and 35° N, less than 50 feet above sea level.
2. Moderate rainfall can be expected year-round, a bit more in the summer.
3. Temperature averages include: December, 50° F and May, 72° F.
4. Climate is Humid Subtropical.

Set # 4

1. This city is located in the eastern hemisphere, elevation near sea level.
2. Rainfall rates are lowest in the summer months.
3. Temperature range (warmest minus the coldest month) exceeds 30° F.
4. Climate type is Mediterranean.

Set # 5

1. Located between 30° S and 40° S, below 1000 ft. elevation.
2. December is warmer than July, and winters are wetter than summer.
3. Temperature range (warmest month minus coldest) is less than 25° F.
4. Climate type is Mediterranean.

Set # 6

1. Located in the southern hemisphere, at or below 1000 ft. elevation.
2. Precipitation is 10 inches or less for the year.
3. No month averages above 32 degrees F.
4. Climate type is Ice Cap.

Set # 7

1. Elevation is between sea level and 200 feet.
2. Average annual temperature does not exceed 30 degrees.
3. Precipitation averages less than 2 inches in every month.
4. Climate has at least four months that average above freezing.

Set # 8

1. Elevation is not over 1000 feet.
2. This location has an extremely large annual range of temperature.
3. Precipitation amounts are less than 2 inches for each month.
4. The climate is classified as Subarctic.

Set # 9

1. Elevation is not higher than 500 feet, latitude is 56° N.
2. Temperature variation over the year is small.
3. Rainfall occurs throughout the year, constantly moist.
4. The climate type is Marine West Coast.

Set # 10

1. This site is in the northern hemisphere.
2. Elevation is 1000 feet.
3. Average annual temperature is 71° F.
4. September is the wettest month of the year.

Set # 11

1. This site is in North America.
2. Average annual rainfall is less than 10 inches.
3. This place is in a warm desert, and no month averages below 40° F.
4. July through September are the wettest months.

Set # 12

1. The longitude indicates that this place is in the eastern hemisphere.
2. Elevation is less than 500 feet.
3. The difference between the warmest and coldest months exceeds 40° F.
4. Four months have no measurable rainfall.

Set # 13

1. This place is located within the tropics.
2. The annual fluctuation of temperature is low.
3. Although four months are dry, average annual rainfall is over 30 inches.
4. Summer is the rainy season.

Set # 14

1. Site lies within 10° of the equator.
2. This place has very even temperatures, warm all year.
3. Every month averages at least 4 inches of precipitation.
4. The wettest month exceeds 20 inches.

Spy Information

Set # 1: This place is: **Omaha, Nebraska.**

Spy information is: Bomb is west of the Prime Meridian.

Set # 2: This place is: **Pierre, South Dakota.**

Spy information is: Many people in the city speak French.

Set # 3: This place is: **Charleston, South Carolina.**

Spy information is: Sorry, this spy was silenced before revealing anything.

Set # 4: This place is: **Corinth, Greece.**

Spy information is: Bomb is in a coastal city.

Set # 5: This place is: **Adelaide, Australia.**

Spy information is: Spy lies about the bomb being in South America.

Set # 6: This place is: **Little America, Antarctica.**

Spy information is: Spy is too cold to talk, try again when she thaws out.

Set # 7: This place is: **Vaygach, U.S.S.R.**

Spy information is: Bomb is ten degrees north of the Tropic of Cancer.

Set # 8: This place is: **Verkhoyansk, U.S.S.R.**

Spy information is: This spy is a tough guy, and refuses to talk.

Set # 9: This place is: **Fort William, Scotland.**

Spy information is: Oops, this spy escaped.

Set # 10: This place is: **Monterrey, Mexico.**

Spy information is: Bomb is in a city on the Atlantic Ocean.

Set # 11: This place is: **El Paso, Texas.**

Spy information is: Bomb is in a city with a Spanish name.

Set # 12: This place is: **Baghdad, Iraq.**

Spy information is: I know nothing, I saw nothing.

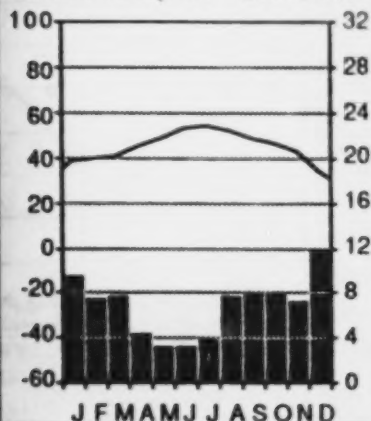
Set # 13: This place is: **Ouagadougou (Wagaduga), Burkina Faso.**

Spy information is: Bomb is on the same continent as Ouagadougou.

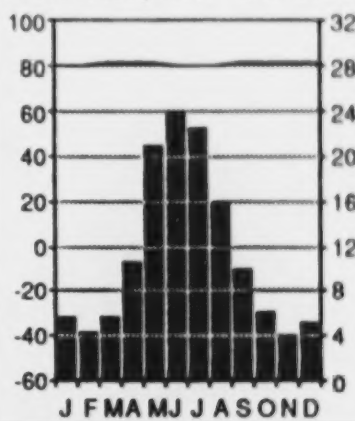
Set # 14: This place is: **Amboina, Indonesia.**

Spy information is: City is located 7 1/2 degrees from the Prime Meridian.

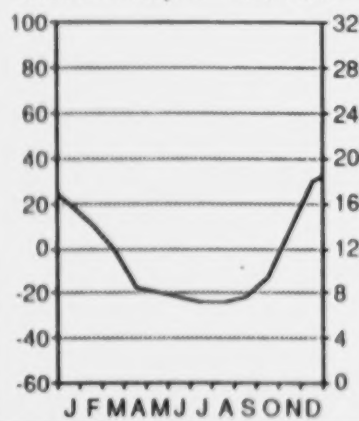
Fort William. Climate Cfb.
Lat 56N. Long 3W.
Mean Annual Temperature 47.
Annual Range of Temps 18.
Annual Precip 80. Elev 200ft.



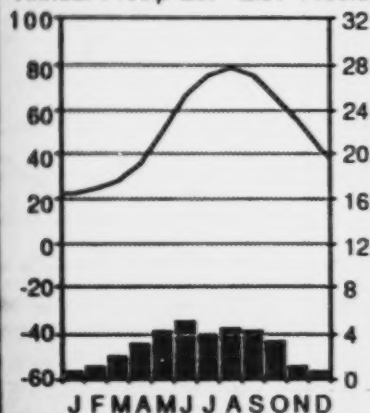
Ambolna. Climate Af.
Lat 4S. Long 128E.
Mean Annual Temperature 79.
Annual Range of Temps 2.
Annual Precip 136. Elev 310ft.



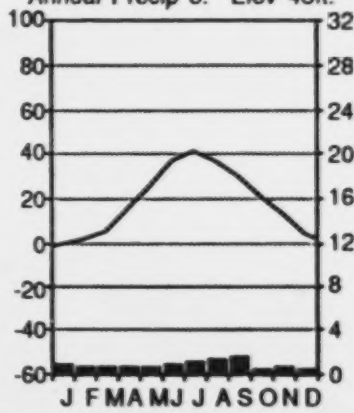
Little America. Climate EF.
Lat 79S. Long 162W.
Mean Annual Temperature -13.
Annual Range of Temps 58.
Annual Precip 0. Elev 80ft.



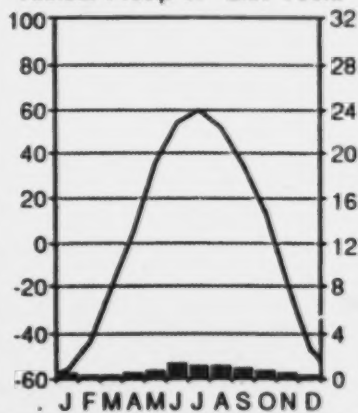
Omaha. Climate Dfa.
Lat 42N. Long 96W.
Mean Annual Temperature 51.
Annual Range of Temps 58.
Annual Precip 29. Elev 1100ft.



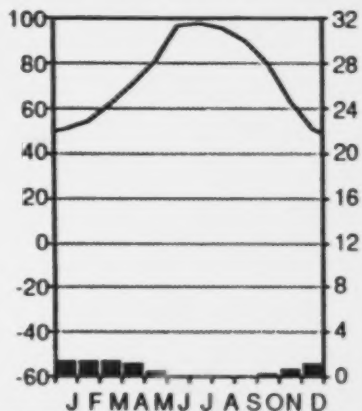
Vaygach. Climate ET.
Lat 70N. Long 59E.
Mean Annual Temperature 20.
Annual Range of Temps 42.
Annual Precip 8. Elev 43ft.



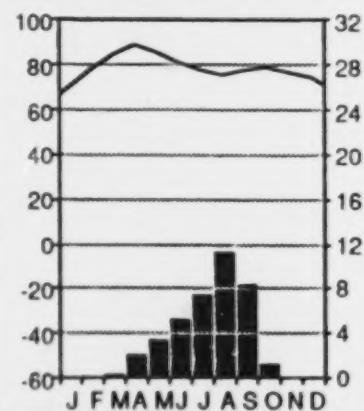
Verkhoyansk. Climate Dwd.
Lat 68N. Long 133E.
Mean Annual Temperature 3.
Annual Range of Temps 118.
Annual Precip 5. Elev 700ft.



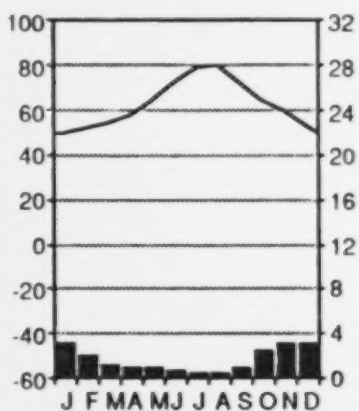
Baghdad. Climate BWh.
Lat 33N. Long 44E.
Mean Annual Temperature 73.
Annual Range of Temps 46.
Annual Precip 7. Elev 220ft.



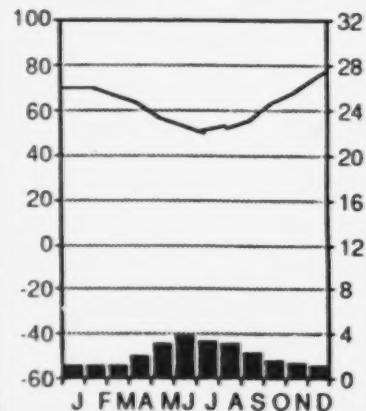
Ouagadougou. Climate Aw.
Lat 13N. Long 2W.
Mean Annual Temperature 81.
Annual Range of Temps 14.
Annual Precip 32. Elev 2493ft.



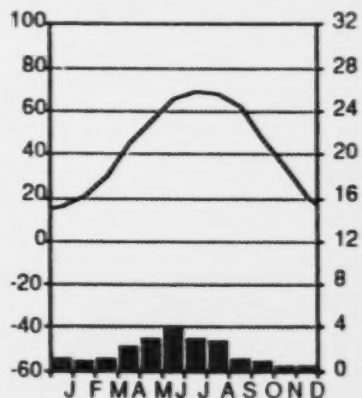
Corinth. Climate Csa.
Lat 38N. Long 23E.
Mean Annual Temperature 64.
Annual Range of Temps 31.
Annual Precip 17. Elev 16ft.



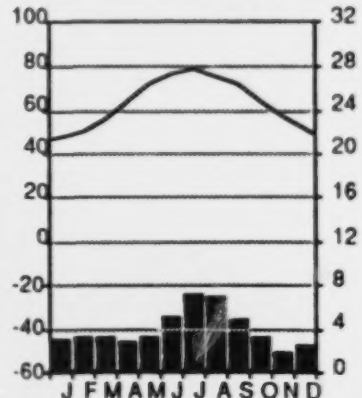
Adelaide. Climate Csa.
Lat 35S. Long 139E.
Mean Annual Temperature 63.
Annual Range of Temps 22.
Annual Precip 21. Elev 500ft.



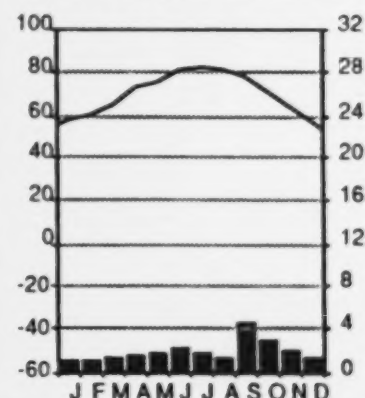
Pierre. Climate BSk.
Lat 44N. Long 100W.
Mean Annual Temperature 46.
Annual Range of Temps 59.
Annual Precip 17. Elev 1000ft.



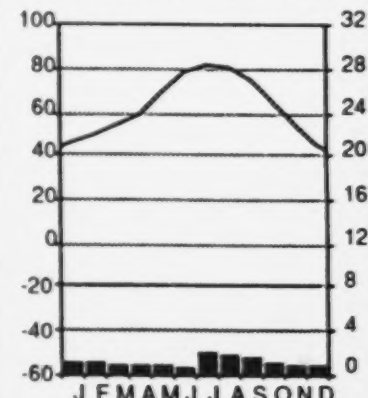
Charleston. Climate Cfa.
Lat 33N. Long 80W.
Mean Annual Temperature 65.
Annual Range of Temps 31.
Annual Precip 48. Elev 48ft.



Monterrey. Climate BSh.
Lat 26N. Long 100W.
Mean Annual Temperature 71.
Annual Range of Temps 25.
Annual Precip 20. Elev 1000ft.



El Paso. Climate BWh.
Lat 32N. Long 107W.
Mean Annual Temperature 63.
Annual Range of Temps 36.
Annual Precip 9. Elev 3900ft.



Putting Current Events on the Map

Linda Frederickson

Jim Selby

Description:

Recently, there has been much discussion about the lack of knowledge by American students concerning location of places in the news. This activity helps students become more aware of the geographic location of current events. Students not only learn what is happening in the world, but also where the event occurred. Students receive a handout containing recent newspaper clippings that concern a specific place, usually a city, country, or region. Using an atlas, the students locate each place, and plot them on an appropriate outline map. This exercise is designed for use in a World Geography course at the 9th-12th grade level.

Learning Outcomes:

1. Students will be able to locate sites of interest in world, national, and local events by city, country, or region.
2. Students will locate and map locations by longitude and latitude if the location is a city or town, and map countries or regions with shading or colors on a base map.
3. Students will learn both relative and absolute locations of a variety of newsworthy places.

Essential Elements; World Geography Studies, Grade 9-12:

2A locate and describe major landforms and features of the Earth

2E locate the major nations and regions of the world

Fundamental Geographic Themes:

Location

Place

Regions

Related Learning Opportunities:

Current Events

History

Classroom Procedures:

1. Prepare a handout (example is enclosed) of headlines and small newspaper clippings that have specific references to places; towns, cities, countries, physical features, and/or regions. The included example was derived from several sources, and an effort was made to include articles concerning positive events, while not totally sheltering the class from the realities of the world. The clippings can be arranged on the sheets in collage format, and sorted into pages referring to either world or U.S. or state events to conform to the base maps provided. Although this activity is designed for world current events, the same format could be followed for any state, country, or region. The locations are chosen by the teacher as the newspaper clippings are selected.

2. Explain the learning objectives of the lesson. Distribute copies of the newspaper clipping handout and the base maps.

3. Tell the students: "Using your atlas, find and map the location of the countries and cities described in the newspaper clippings. Put a dot on the provided base map to indicate the location of each city mentioned and write the name of the city next to the dot. If the city is the capital of a country or state, use a star to mark that location, and label with the name of the capital city. Where countries or states are to be put on your map, color or shade the area mentioned. Inside the outline of that country's boundary, write the name of the country. If the country is small, and the name will not fit, write the name nearby, but outside the country, and use an arrow to point from the country name to the area that you have shaded."

4. Allow students the full class period to complete the assignment.

5. Upon completion, review the correct answers with the students. An overhead transparency of each base map can be displayed, showing the places mapped correctly. As each location is shown to the students, the teacher should review the current event that occurred at that place and follow with an in class discussion of selected events.

Materials:

1. Atlas
2. World Geography textbook
3. Pencil or pen
4. Colored pencils
5. United States, World, and other necessary base maps

Evaluation:

Grade the outline map.

Students can also turn in a chart of places listed, followed by a brief summary of the event at that location.

Officials report progress at Persian Gulf talks

UNITED NATIONS — Negotiations on a cease-fire to end the Iran-Iraq war reached a critical point Friday night as senior U.N. officials voiced optimism they had crafted a plan that would be acceptable to both sides.

Diplomats leave Kabul after attacks

ISLAMABAD, Pakistan (AP) — Several countries have begun calling their diplomats home from Kabul after a barrage of guerrilla rocket attacks on the Afghan capital, Western diplomats said Friday.

South Africa pulls film on anti-apartheid hero

By Scott Kraft
Los Angeles Times Service

JOHANNESBURG, South Africa — Only hours after *Cry Freedom* won approval from government censors and made its South African premiere Friday, the authorities banned the anti-apartheid movie as a threat to public safety and seized film reels from at least 30 theaters nationwide.

Arlington pair to give sword back to Japan

Relic considered national treasure

ARLINGTON (AP) — An Arlington couple will return a 42-inch samurai sword that is considered a national treasure to Japan after the sword spent about 33 years in the United States, much of that time in the closet of an Abilene home.

Aid Jamaica-bound as Yucatan reels

The U.S. government dispatched aid Wednesday to help ravaged Jamaica, as Hurricane Gilbert struck Mexico's Yucatan Peninsula, emptying resort communities of tourists.

SOUTH KOREAN PRIDE: South Korean President Roh Tae Woo, addressing the Korean people Tuesday night, complimented his compatriots on preparations for the Games and said all that was left was to start the Games. "I am confident that the Seoul Olympics will be the most successful in athletic terms. Throughout history, no festival has attracted more world attention than the Olympics. The eyes and ears of five billion people on earth are turned to us and our country."

Singer Olivia Newton-John covers Australia, from the Sydney Harbor Bridge to the vast, dusty outback, in her HBO special, a musical salute to the 200th anniversary of the nation's dawn under.

NEW YORK — Michael Fay of New Zealand reached a compromise Friday with Doug Alford, commodore of the San Diego Yacht Club, to begin the America's Cup races Sept. 7.

WASHINGTON — The Federal Aviation Administration, reacting to a collision over the Grand Canyon that killed 25 people last June, announced new rules Tuesday for tourist flights at the national park.

An oceanographer's study released Friday says the medical-type waste washing ashore on northeastern beaches probably was dumped near the mouth of New York Harbor in mid-June.

'Glasnost' comes to high schools

WASHINGTON — A U.S.-Soviet exchange program starting in spring 1989 will let up to 1,500 high school students a year trade places with their Russian counterparts.

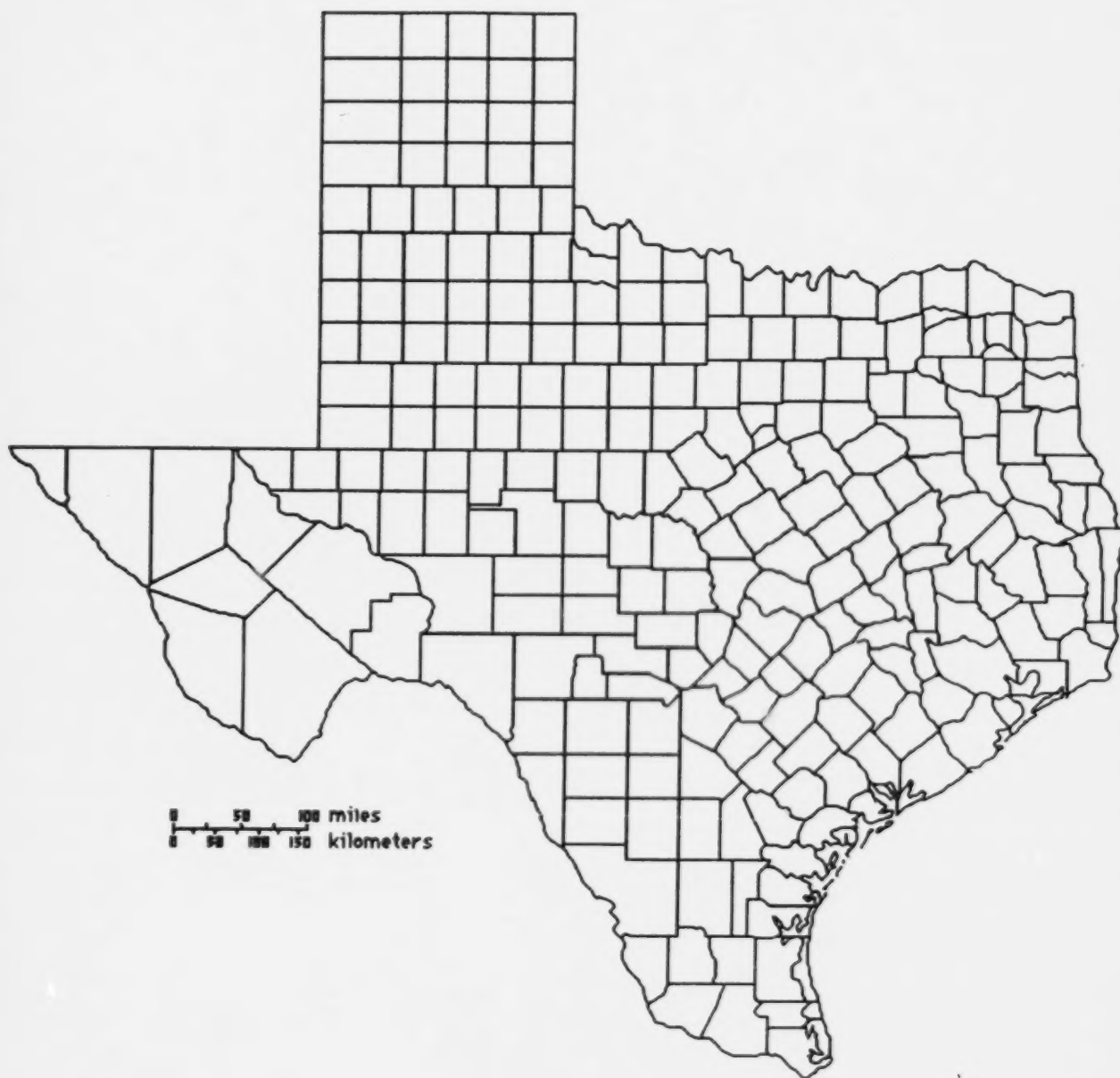
The program, proposed by President Reagan during the Moscow Summit, will involve 25 schools from each country this year, with 25 more next year and 50 more the next.

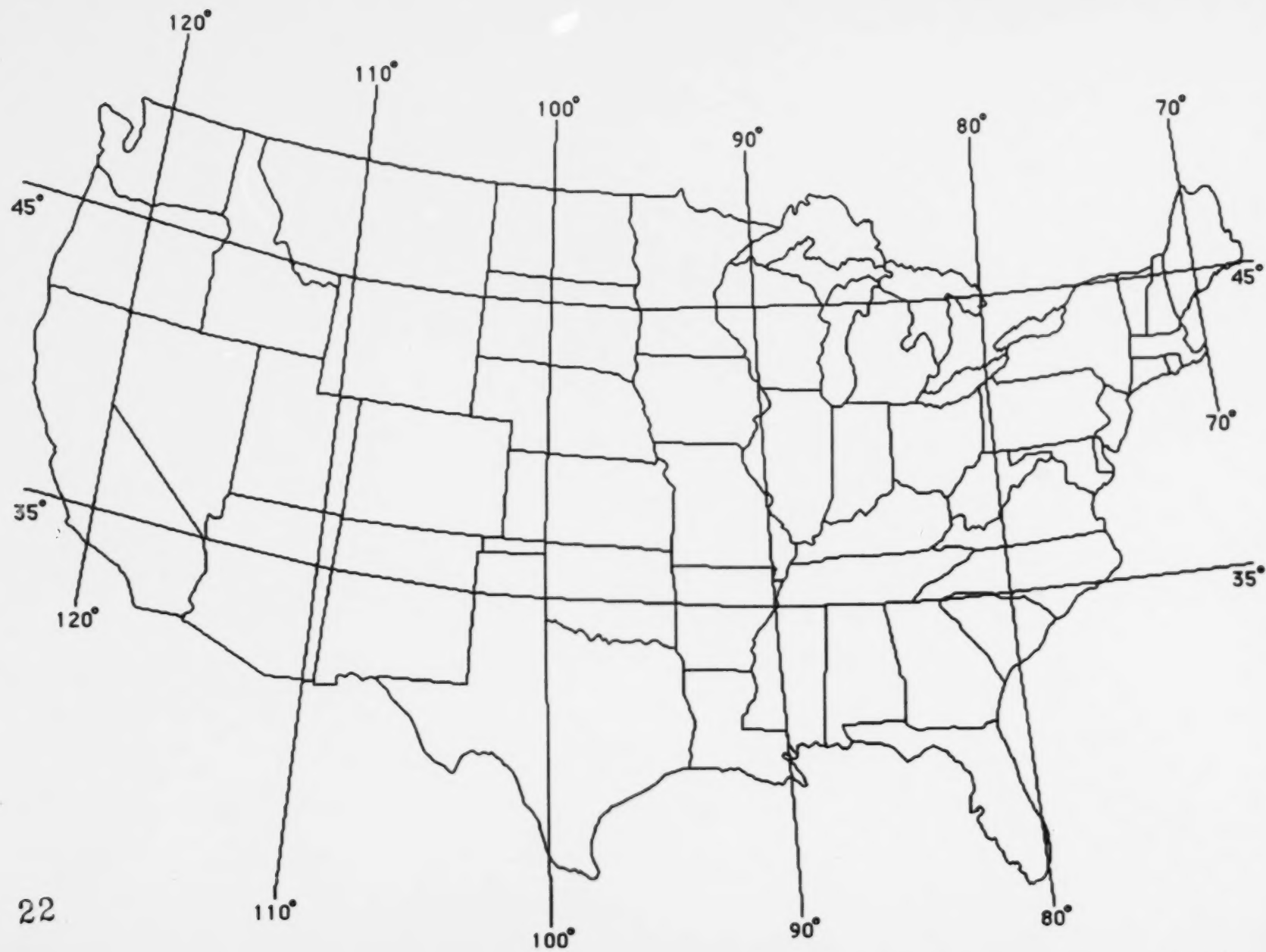
Sun Belt leads growth

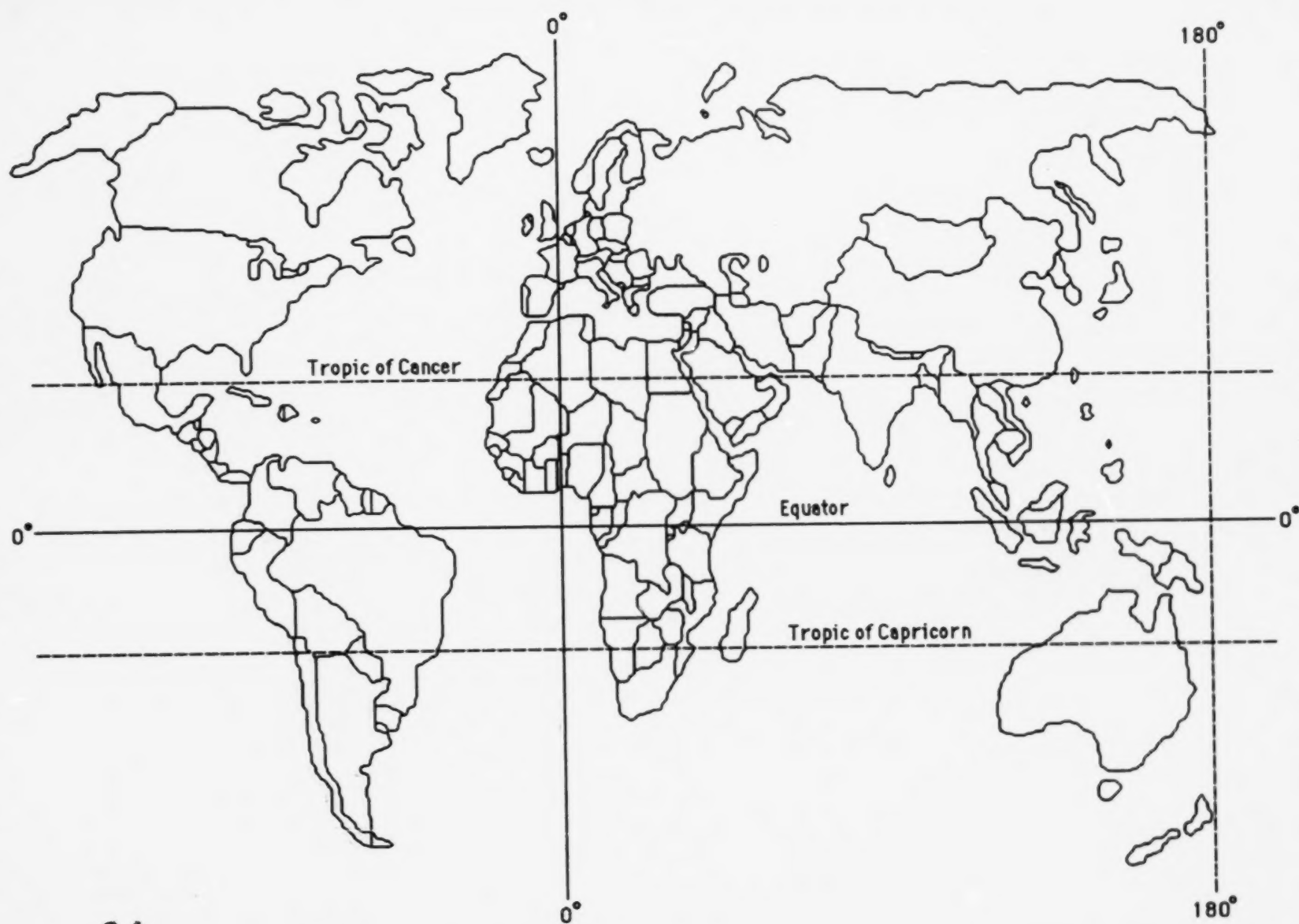
NEW YORK — Nearly all of the fastest growing metropolitan areas in the United States are in Florida and Texas, according to a study released Wednesday. Donnelley Marketing said nine of the 10 metropolitan areas that have had the biggest population growth since the 1980 Census are in the two states. Naples, Fla., showed the fastest growth with an increase of 45.5 percent, the study said. After Naples came Anchorage, Alaska, 43.9 percent growth; Ocala, Fla., 41.3 percent; Fort Pierce, Fla., 40 percent; and Austin, 38.2 percent.

NEW DELHI, India (AP) — An 18-month religious experience will end for millions of Indians when a TV serialization of a Hindu epic goes off the air despite protests that reached all the way to India's Parliament.

The series *Ramayana*, which depicts the trials and tribulations of the mythical warrior-god Rama, has been the most popular program ever on government-run Indian television. It is set to end Sunday.







24

25

Comparing Maps and Globes

Bert Bonnecarrere
Cyndi Krueger
Jane Maler
Jerry Wright

Description:

Middle school students compare different map projections to the globe, to learn the advantages and disadvantages of each method for portraying the Earth or part of the Earth.

Learning Outcomes:

The students identify the globe as the most accurate representation of the Earth's surface. They also differentiate between Mercator and equal-area projections and investigate the advantages and limitations of different map projections.

Essential Elements; Social Studies, Grade 6/U.S. History, Grade 8:

5F (Grade 6) recognize various types of map projections

2B (Grade 8) identify and describe the major geographic regions

Fundamental Geographic Themes:

Location

Place (physical characteristics)

Related Learning Opportunities:

Earth Science

Math

Classroom Procedures:

1. View transparencies (masters are included), the Mercator Projection, Equal-Area Projection.
2. Class discussion: Why are there different types of projections? Are some better than others? How do they compare to globes?
3. Copy vocabulary words and define as a class: projection, cylinder, distortion, model.
4. Pass out handout: "Comparing Maps and Globes." Read orally and discuss in class. Underline important concepts.
5. Individual worksheet: "Map Projections Word Puzzle." Students will use handout "Comparing Maps and Globes" for reference.
6. Review concepts from previous day by grading in class the "Map Projections Word Puzzle."

7. Form student groups of four to five for the activities: "Is it Really Impossible to Show the Earth's Surface on a Flat Map?" and "Comparing Maps and Globes."

8. Orally review the activity and ask for a show of hands for understanding the question: "Which gives us a better view of the Earth, a globe or a map? Why?"

9. Students will turn in group worksheets for teacher observation.

Materials:

1. Globes-- one for each group.
2. Tracing paper
3. Class sets of Mercator and equal-area maps at about the same scale as the globe.
4. Handouts: Comparing Maps and Globes, Map Projections Word Puzzle.
5. Group copies of activity: "Is it Really Impossible to Show the Earth's Surface on a Flat Map?"
6. Scissors and tape
7. Overhead projector

Evaluation:

Individual worksheet, group activity worksheet, teacher observation of student participation.

Note:

Copies of individual and group activities are included here. Although it may be difficult to find maps at the same scale as your globes, you can use a copy machine to reduce or enlarge the maps. Reproducing the maps at the same approximate scale may take some time, but the teacher will then have class sets that can be used in future classes.

Comparing Maps and Globes

The Globe A globe is a small model of the Earth. It is more accurate than a flat map. A globe shows the shapes of land masses better than a map shows them. Globes show true distance, true directions, and true sizes of land masses on the Earth.

Differences Between Maps and Globes A map shows the Earth or part of the Earth on a flat surface. It is not easy to accurately show the Earth on a flat surface. Sometimes the map maker has to change the shapes of places in order to fit them on the map. Maps are often easier to use than globes. It would be hard to carry a globe with us every time we went on a trip.

Kinds of Maps A map is a picture of all or part of the Earth's surface. A map is drawn on a flat piece of paper. A globe is really not a map, but a model of the Earth and it is a more accurate representation of the Earth.

A map projection (or drawing) represents the Earth's surface on a flat piece of paper. There are many kinds of map projections. They are all different in some way. Map projections show different ways of representing the Earth's curved surface on a flat surface, and they may be useful in different ways.

It is very hard to show the Earth's surface on a flat surface and be correct. If you tried to flatten out an orange peel, you would begin to understand why it is not an easy job to make a flat map. All maps change the real picture of the Earth in some way. Some maps change the shape of a land mass, others do not show directions correctly. We say that maps distort things when they change the actual picture. But map makers do their best to show the Earth's surface as correctly as possible. Map makers have worked on this problem for many years, and have tried many ways of making maps.

The Cylindrical Projection One way to make a map is to wrap a round tube of paper (a cylinder) around a model of the Earth. A map is drawn on the paper and then it is flattened out. This is called a cylindrical projection. A famous example of a cylindrical projection is the **Mercator Projection**. A man named Mercator drew this map in the year 1569, on a tube of paper wrapped around the globe. The paper touched the globe at the equator. The continents at the equator were drawn in. The paper was then taken off and put on a flat surface and the rest of the continents were drawn.

The Mercator projection has good points and bad points. A good point is that any straight line drawn on a map shows true compass direction. A bad point is that it badly changes the shapes of the land areas. The areas away from the equator are very spread out and look much larger than they really are. If you look at Greenland on the Mercator projection, you can see that it looks almost as large as South America. Greenland is really much smaller than South America.

The Equal-Area Projection Any map which shows sizes accurately is called an equal-area map. Most of the equal-area maps of the whole Earth have one serious problem. The problem is that shapes of areas away from the center of the map are distorted, or stretched out of shape.

Map Projections Word Puzzle

Use your handout Comparing Maps and Globes and the clues below to complete the puzzle. Fill in the blanks with the correct letters.

1. A globe is not a map, but a _____ of the Earth.
2. It is very difficult to portray the surface of the _____ on a flat surface.
3. A map projection is a _____ of the Earth's surface on a flat piece of paper.
4. An equal-area map badly distorts the _____ of the land.
5. The _____ map shows sizes accurately.
6. Maps _____ things when they change the actual picture.
7. A map _____ is a drawing that represents the Earth's surface on a flat piece of paper.
8. A good example of a cylindrical projection that severely distorts the areas of land and ocean is the _____.
9. It is impossible to portray the _____ surface of the Earth on a map without distortions.
10. It is impossible to portray the curved surface of the Earth on a _____ map without distortion.
11. The Mercator projection shows true compass _____ as straight lines.
12. A _____ gives us a better picture of the Earth than a map.
13. Mercator's map is a good example of a _____ projection.
14. An advantage of a Mercator projection is that it shows true _____ directions.

1. **M** _ _ _ _
 2. _ **A** _ _
 3. _ _ **P** _ _ _ _ _

4. _ _ _ **P** _ _
 5. _ _ _ _ _ **R** _ _
 6. _ _ _ _ _ **O** _ _
 7. _ _ _ _ _ **J** _ _ _ _ _
 8. _ _ _ _ _ **E** _ _ _ _ _
 9. _ _ _ _ _ **C** _ _ _ _ _
 10. _ _ _ _ _ **T** _ _ _ _ _
 11. _ _ _ _ _ **I** _ _ _ _ _ _ _ _
 12. _ _ _ _ _ **O** _ _ _ _ _
 13. _ _ _ _ _ **N** _ _ _ _ _ _ _ _
 14. _ _ _ _ _ **S** _ _ _ _ _

Is it Really Impossible to Correctly Show the Earth's Surface on a Flat Map?

Directions:

1. Trace Greenland as accurately as possible from your globe. Separately trace the rest of North America. Continue to separately trace Africa, South America, Australia, Europe, and Asia. In this exercise we will not use Antarctica. Cut out each piece of land and label with the name of the continent and the word **Globe**.
2. Trace Greenland (not a continent, but the world's largest island) and the six continents (all but Antarctica) from the Mercator map. Cut out and label with the word **Mercator** as well as the continent name.
3. Trace Greenland and the six continents from your equal-area map. Cut out and label each with the name of the continent and the words **Equal-Area**.
4. Take your seven globe cuttings, lay out and tape on a table in the following order: Greenland, North America, South America, Africa, Europe, Asia, and Australia.
5. Take your seven Mercator cuttings and lay them out on the desk directly under the globe cutting so you can compare them. Fill out the chart below as best you can. Use these three choices for your answers: YES, NO, or Cannot Tell.

Mercator Projection

Land Mass	Shapes the same	Sizes the same
Greenland		
North America		
South America		
Africa		
Europe		
Asia		
Australia		
Antarctica	not used	not used

6. Conclusions: Underline the correct answers.
The Mercator does/does not portray a good representation of the Earth because it distorts the size/shape of land a great deal. The only place that a Mercator map seems accurate is right along the poles/equator.

7. Remove the Mercator cuttings and replace them with the equal-area cuttings for comparison with the globe cuttings. Fill out the chart below as best you can by comparing the equal-area land cuttings to those of the globe.

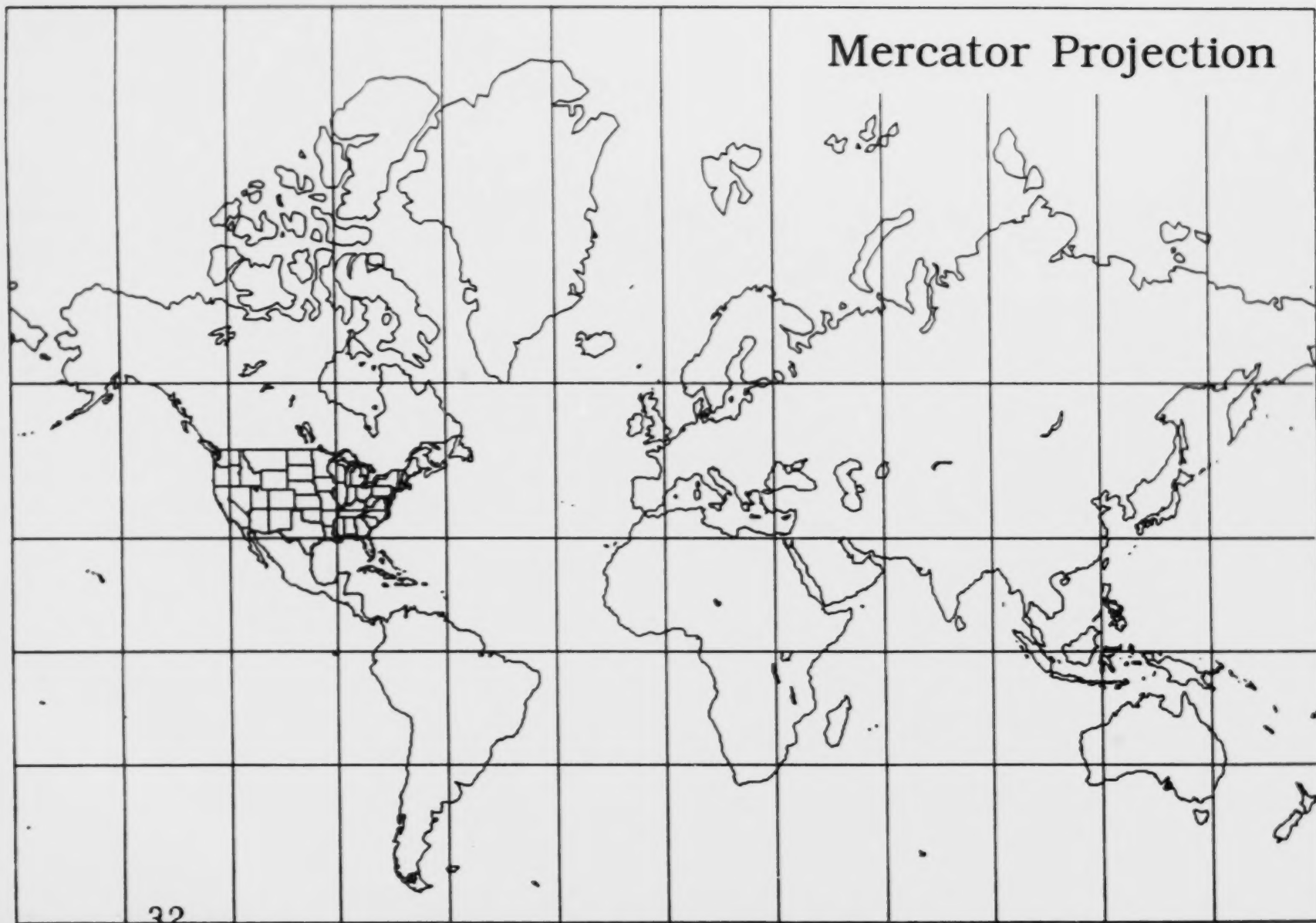
Equal-Area Projection

Land Mass	Shapes the same	Sizes the same
Greenland		
North America		
South America		
Africa		
Europe		
Asia		
Australia		
Antarctica	not used	not used

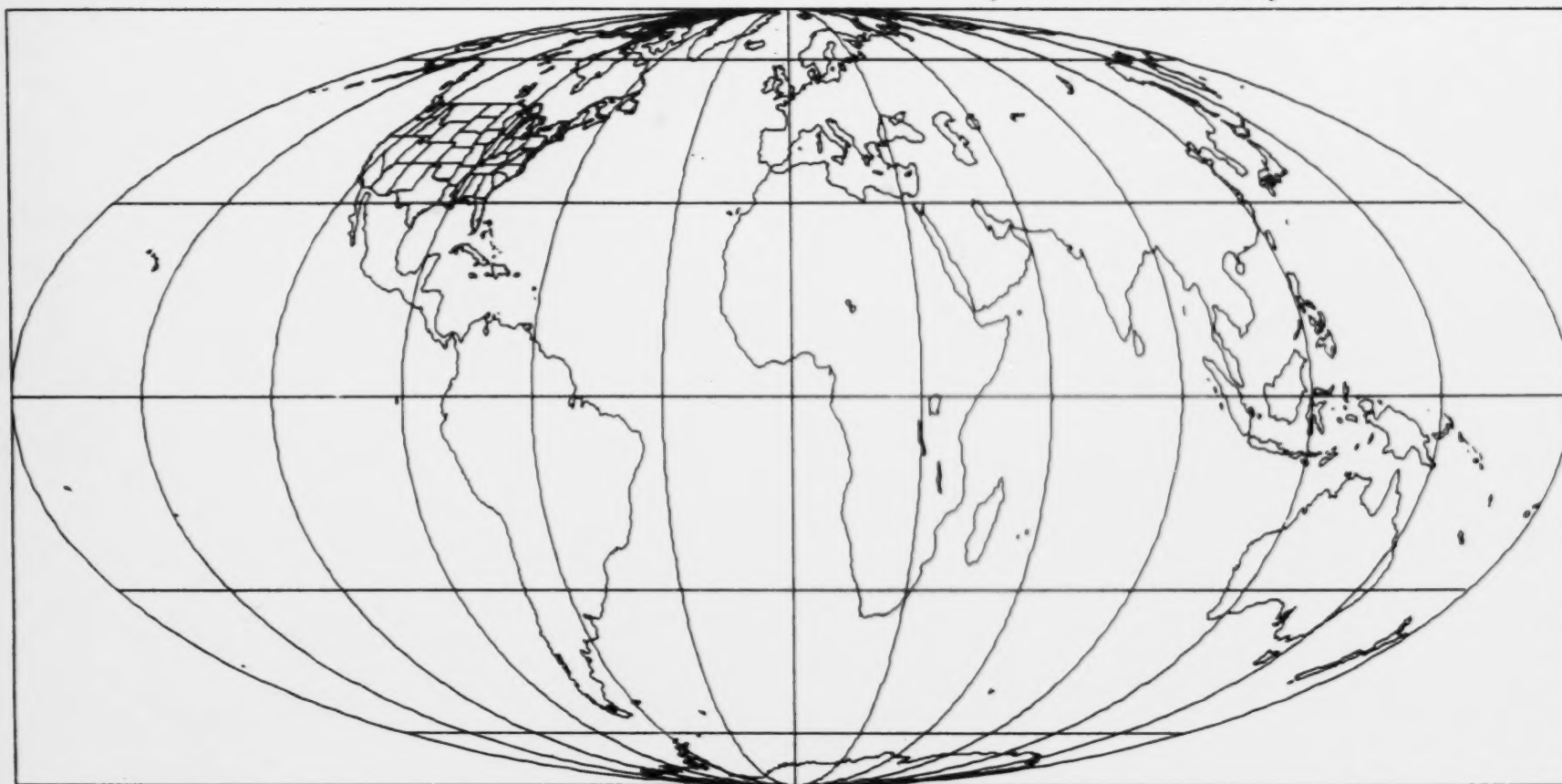
8. Conclusions: Underline the correct answers.

The equal-area projection does/does not portray a good representation of the Earth because it distorts the size/shape of the land a great deal. It is different than a Mercator projection because the sizes/shapes of the land are the same everywhere, not just along the equator.

Mercator Projection



Equal-Area Projection (Mollweide)



The Search for Mayan Treasure

Nancy Crockett

George R. Legg

Debi Elliott

Melissa Kraft

Description:

This activity involves a "treasure hunt" through Central America, beginning with a cruise ship landing at Colon, Panama. Students follow clues to plot a journey to Guatemala. With the exception of a specific National Geographic wall map, all materials should be available in your department or the school library. Time frame: one to two class periods, depending on the level of the students. Students can do this activity in groups, or individually.

Learning Outcomes:

At the conclusion of the exercise the student will be able to:

1. locate and label countries and important geographic features of the Central American region.
2. follow a complex set of directions to achieve a desired outcome-- location of the treasure.
3. analyze map information from various maps of Central America.
4. analyze geographical clues.

Essential Elements; World Geography Studies, Grades 9-12:

1A compare physical and cultural geography

1B explain geographical terminology

1C describe geographical tools and methodologies

Fundamental Geographic Themes:

Location

Place

Movement

Related Learning Opportunities:

Math. Students calculate time taken on the trip and sum mileage.

Art. Students can draw their concept of the Mayan treasure.

History. Students relate current/historical themes and events to a journey through Central America.

Language Arts. Students complete paragraph assignments from information required by worksheet, or keep a fictitious diary of the trip.

Classroom Procedures:

The student will:

1. Label the countries of Central America.
2. Locate and label the following features: (a.) Capital city of each country, (b.) Mountain ranges, (c.) Lake Nicaragua, (d.) Caribbean Sea, (e.) The United States, (f.) South America, (g.) The Pacific Ocean, (h.) The Panama Canal.

3. Locate the site of the treasure on the base map of Guatemala, with an "X" and draw or list the articles which might be in the treasure.
4. Trace the route indicated by clues on the base map of Central America.

The instructor is responsible for checking for accuracy as the students complete the exercise, giving the clues necessary for locating the Mayan treasure, and monitoring the exercise as appropriate.

Note: This activity has been designed to use clues presented on a specific map. The necessary map is the Historical and Political Map of Central America, published by The National Geographic Society (April, 1986). The map is the reverse side of Central America, Past and Present. This specific map should be used as other Central America maps will not contain all of the necessary clues for students to complete this exercise.

Materials:

Base outline maps of Central America and Guatemala.
 National Geographic Society Historical and Political map of Central America (April, 1986). (On side opposite National Geographic Central America Past and Present). One map per 4 students, if possible.
 World atlas which contains location maps of Central America
 List of clues to the treasure site.

Evaluation:

The teacher will evaluate the students based on:

1. The completed base maps.
2. Accuracy of treasure location, completed map drawing of treasure.
3. The answer key (below).

Answer Key:

1. Caribbean.
2. Church, Cathedral, Catholic.
3. Highway 1, 200-300 miles, Panama, La Charrera.
4. Parrita is located on the Pacific coast of Costa Rica, southwest of San Jose. Route: Highway 2 to Palmer Sur, lowland Road to Parrita, then to Santiago to San Jose.
5. No, clues are to be found in churches. Colorado (the city of the red), is a "Red Herring."
6. Managua is the capital of Nicaragua, country of the Sandinistas.
7. Nicaragua is the site of frequent earthquakes. Highway 1.
8. It is very difficult to drive from one side of Nicaragua to the other and take the auto out of the country. As an American, you don't argue with the Sandinista border guards.
9. Take a bus or rent a car (highly unlikely). You could hike the distance.
10. Students could list the per capita income for the countries of the region if you wish to be certain that they have read the printed material.
11. Belize.
12. Belize City.
13. Lago Peten Itza, near Tikal National Park, adjacent to the town of El Cruce.

Lost Treasure of the Maya--

You have been chosen to free the lost treasure of the Maya. There are great perils that lie before you. Hardships will await you at every corner. But if you are resourceful and can decipher the secret messages that are waiting ahead, fame and fortune will be yours. You only have your mind and your talents as the greatest geography student the world has ever known. Now pay close attention because deception is at every turn. Be sure to follow all of the instructions thoroughly, and you will receive what you deserve. Good luck!

CLUES

1. A cruise ship, The Santa Maria, has docked at the city of Colon, Panama. Your search for fame and fortune begins here. On which body of water (coast) is Colon located?
2. You rent a car and proceed north on the Pan American Highway toward Veracruz, Mexico. Just before you begin your journey, you meet a man who sells you secret information for finding the lost treasure of the Maya. You, the geography student, must help your friend locate each place for a new clue. The clues will always be found in the largest local church. What religion is the largest local church likely to be?
3. Plot the best route through Panama until you reach the town of David, where you have decided to spend the night. List the highways you have traveled and the number of miles. Be sure to include any township of over 100,000 people that you might pass through.
4. At David, you find a clue at the church which tells you to proceed to the ancient city of Parrita. You find a clue here which tells you your route will rise far above the sea on your way to the capital city of Costa Rica.
5. In the Costa Rican capital, you meet an old man standing in front of your hotel who gives you a clue that says you should go to the Red city on the northeastern Caribbean coast. You read the clue-- should you take its message?
6. You and one of your friends go to the cathedral where you find a clue telling you to fly to the capital of the Sandinistas. Now you must decide which clue to follow.
7. Those of you who chose to fly to Colorado must start over. If you are in Managua, your clue requires you to provide yourself with backpacks and camping gear. It says your next stop is Ocatal. It also suggests that you are in danger from the effects of "plate tectonics." You learn that you take the Pan American Highway, avoiding all volcanos. Is this fact significant? Which highway did you take to arrive safely?

8. There is a border crossing at "The City of the Hands." The guards force you to abandon your car. Why would you do this?

9. You cross the border and now you are in the nation of Honduras. You must reach Tegucigalpa within five days. What do you do? Specify your means of transportation and your route.

10. In Honduras, you wait, because there is no clue at the cathedral. You take the time to find out about this new region with which you are now more familiar. After you have read the information on the **National Geographic** map, you are ready to collect the final two clues. You must first determine which of the four countries: Honduras, Belize, Guatemala, or El Salvador, is the location for the final clue.

11. You fly from Tegucigalpa to the country which:
A. has a population which is over 50% black.
B. is not involved in a political revolution.
C. is a former British colony/possession.

12. When you determine your destination country, fly to the coastal city which has a name very similar to the name of the nation.

13. The final clue tells you to proceed west-southwest to a body of fresh water where you find the treasure of the Maya. You will travel about 170 kilometers.

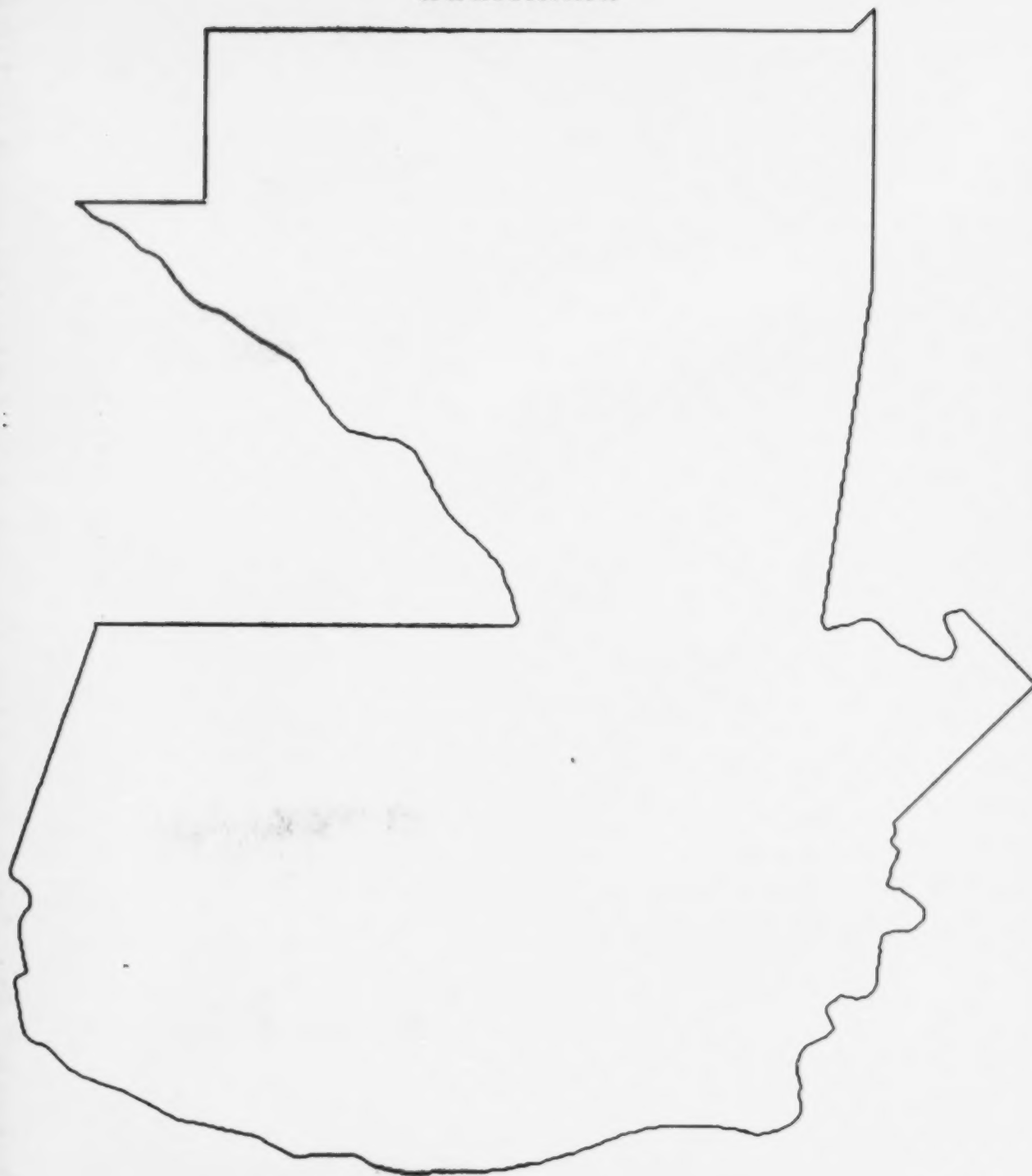
14. You can determine whether you are in the right place by securing from your teacher the map of the country where the treasure is located.



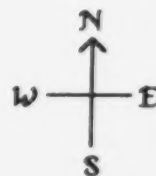
Central America

0 500 Miles

Guatemala



1. Make sure you plot the location of the treasure.
2. Signify this location with an "X." Do not let your opponents see.



Where Did I Come From . . . How Did I Get Here?

Bert Bonnecarrere
Cyndi Krueger
Jane Maler
Jerry Wright

Description:

This activity introduces students to the concept of ethnic heritage. Students gain an understanding of the geographical, human, and physical qualities that contributed to their ethnic background, and the heritage of other students. The students draw general conclusions about their identity, and its contribution to their heritage as Americans. This activity can be based on a student's family origins, or any other ethnic group of the student's choice. In most cases, students should be encouraged to explore their own past. This activity was designed for middle school students, although it provides an educational model that can easily be adapted to other learning levels and grades. Students are encouraged to be creative and use their imagination in working on a real-world question.

Learning Outcomes:

1. When students finish this activity they will be able to give an absolute location of their ancestral homeland.
2. Students will be able to give a relative location of their present home compared to the ancestral home of their family.
3. Students will be provided the opportunity to explore resources such as written history, oral history, artifacts, and folklore that have meaning to their past, present, and future.
4. Students will be able to provide a description of factors that lead to the migration of their ancestors.
5. Students will identify and discuss the physical environment of their ancestral home compared to their present physical environment.

Essential Elements; Social Studies, Texas History and Geography, Grade 7:

- 1A describe the history of the earliest inhabitants and settlers of Texas
- 1B understand the reasons for European exploration and colonization
- 1C identify and explain significant historical personalities
- 4C understand the influence of geography on settlement

Fundamental Geographic Themes:

Location
Place
Relationships within Places
Movement
Regions

Classroom Procedures:

1. Students will discuss what it is to be an American.

2. Students will read and discuss the article, "One Hundred Per-Cent American," by Hal Linton.
3. The students will investigate how their families came to America.
4. Research topics are introduced, and students are provided with the attached instruction sheet.
5. Students will make an oral presentation in class and turn in a booklet entitled: "Where did I come from... How did I get here?"

Materials:

Base maps of the World, the United States, and Texas
Resource data sheets
Goode's World Atlas, or other world atlas.
Europa and or World Almanac.
Dictionary
Assorted magazines for booklet illustrations.
Poster board
Colored pencils

Evaluation:

Students will be evaluated on the quality of data collection, concept, presentation, and content of project. This will include a discussion of their project in class, and the written booklet turned in to the teacher.

Extra Credit:

Students can find an article that demonstrates the global interdependence of their ancestral region to the rest of the world, to the U.S, and or to Texas. They then explain this interdependence in their own words, and they should be prepared to defend their answer.

Instructions for Students:

1. Use the three base maps to plot the place of your family's origin and their present location. Include their latitude and longitude in your report.
2. On the world map, use colored pencils to trace a possible route of travel that your ancestors took to the U.S. Measure and record this distance in miles using the bar scale on maps in the Goode's World Atlas.
3. On the U.S. map, draw the paths your ancestors took once they reached the New World. Which path led your family to Texas?
4. Trace your family's movement to their present home in Texas. Plot this on your Texas map using colored pencil. **Hint:** A good place to start might be where your parents got married. In some cases, students might have to use all three maps to plot this information.
5. Create a family tree, giving the names, dates of birth, date of marriage, place of birth, and place of marriage for the people that are your direct ancestors. This information should be displayed on the provided base maps. Create a color legend to show places of birth and marriage. Remember to include yourself. **Hint:** Good sources will be older relatives, religious books, family picture albums, family journals, or family cemetery plots.
6. Give a brief description of the climate in the place(s) of ancestral origin and compare this information to the climate where you now live. How are they different? How are they alike? Can you make any statements about geographic locations that make these environments similar or different?
7. Give a brief description of how your ancestors made a living. Compare that way of life to the present. Does climate or physical environment play a role in these differences or similarities?
8. Make the same comparisons as in question seven for the following: food, clothing, shelter, holidays, types of transportation, customs, and language.
9. Give a description of the factors that have lead to migration of your immediate ancestors to the place your family now lives. **Hint:** religious events, major historical events, political events, changes in technology, population changes, natural causes (weather), economic factors, or others.
10. Look for visual, written, or audio examples of contributions your ancestral heritage has made to American culture. List them or cut out magazine pictures showing these things. **Hint:** If it is a physical object, you may use it in your presentation. Places and things include: magazines, architecture, foods, fashions, literature, movies, art, furniture and others. Pictures should be displayed on poster board.
11. Use a dictionary to find at least ten words that are now part of the English language that can be traced to the language or country of your ancestry.

All information will be collected and displayed on your base maps or your resource data sheet while you are gathering information. All information on your resource data sheets must be supported by three sources. You will put this information in a written summary form and turn it in as a booklet.

One Hundred Per-Cent American, by Ralph Linton

There can be no question about the average American's Americanism, or his desire to perceive his precious heritage. Nevertheless, some insidious foreign ideas have already wormed their way into our civilization.

Thus, observe the patriotic American. Dawn finds him garbed in pajamas, a garment of East Indian origin. He is lying in a bed built on a pattern which originated in either Persia (now Iran), or Asia Minor. He is muffled to the ears in un-American materials: cotton, first domesticated in India; linen, domesticated in the Near East; wool from an animal native to Asia Minor (the Middle East); or silk, whose uses were first discovered by the Chinese. All of these substances have been transformed into cloth by methods invented in Southwestern Asia. If the weather is cold enough, he may be sleeping under an elderdown quilt, invented in Scandinavia.

On awakening, he glances at the clock, a medieval European invention. Late, he rises in haste, and goes to the bathroom. Here, if he stops to think about it, he must feel himself in the presence of a great American institution. He will have heard stories of both the quality and frequency of foreign plumbing. In no other country does the average man perform his ablutions in the midst of such splendor.

But the insidious foreign influence pursues him even here. Glass was invented by the ancient Egyptians. The use of glazed tiles for floors and walls was developed in the Near East. Porcelain was invented in China. And the art of enameling on metal was developed by Mediterranean artisans of the Bronze Age. Even his bathtub and toilet are but slightly modified copies of Roman originals. The only purely American contribution to the ensemble is the steam radiator, against which our patriot very briefly and unintentionally places his posterior.

In the bathroom, the American washes with soap, invented by the ancient Gauls. Next he cleans his teeth, a subversive European practice which did not invade America until the latter part of the eighteenth century. He then shaves, a masochistic rite developed by the heathen priests of ancient Egypt and Sumeria. The process is made less of a penance by the fact that his razor is of steel, an iron-carbon alloy, discovered in either India or Turkestan. Lastly, he dries himself on a Turkish towel.

Returning to the bedroom, the unconscious victim of un-American practices removes his clothes from a chair, invented in the Near East, and proceeds to dress. He puts on close-fitting tailored garments whose form derives from the skin clothing of the ancient nomads of the Asiatic steppes. He fastens them with buttons whose prototypes appeared in Europe at the close of the Stone Age. This costume is appropriate enough for outdoor exercise in a cold climate. But it is quite unsuited to American summers and heated houses. Nevertheless, foreign ideas and habits hold the unfortunate man in thrall even when common sense tells him that the authentically American costume of G-string and moccasins would be far more comfortable.

He puts on his feet stiff coverings made from hide prepared by a process invented in ancient Egypt and cut to a pattern which can be traced back to ancient Greece. Then he makes sure that they are properly polished, also a Greek idea. Lastly, he ties about his neck a strip of bright-colored cloth which is a vestigial survival of the shoulder shawls worn by seventeenth-century Croatians. He gives himself a final appraisal in the mirror, an old Mediterranean invention, and goes downstairs to breakfast.

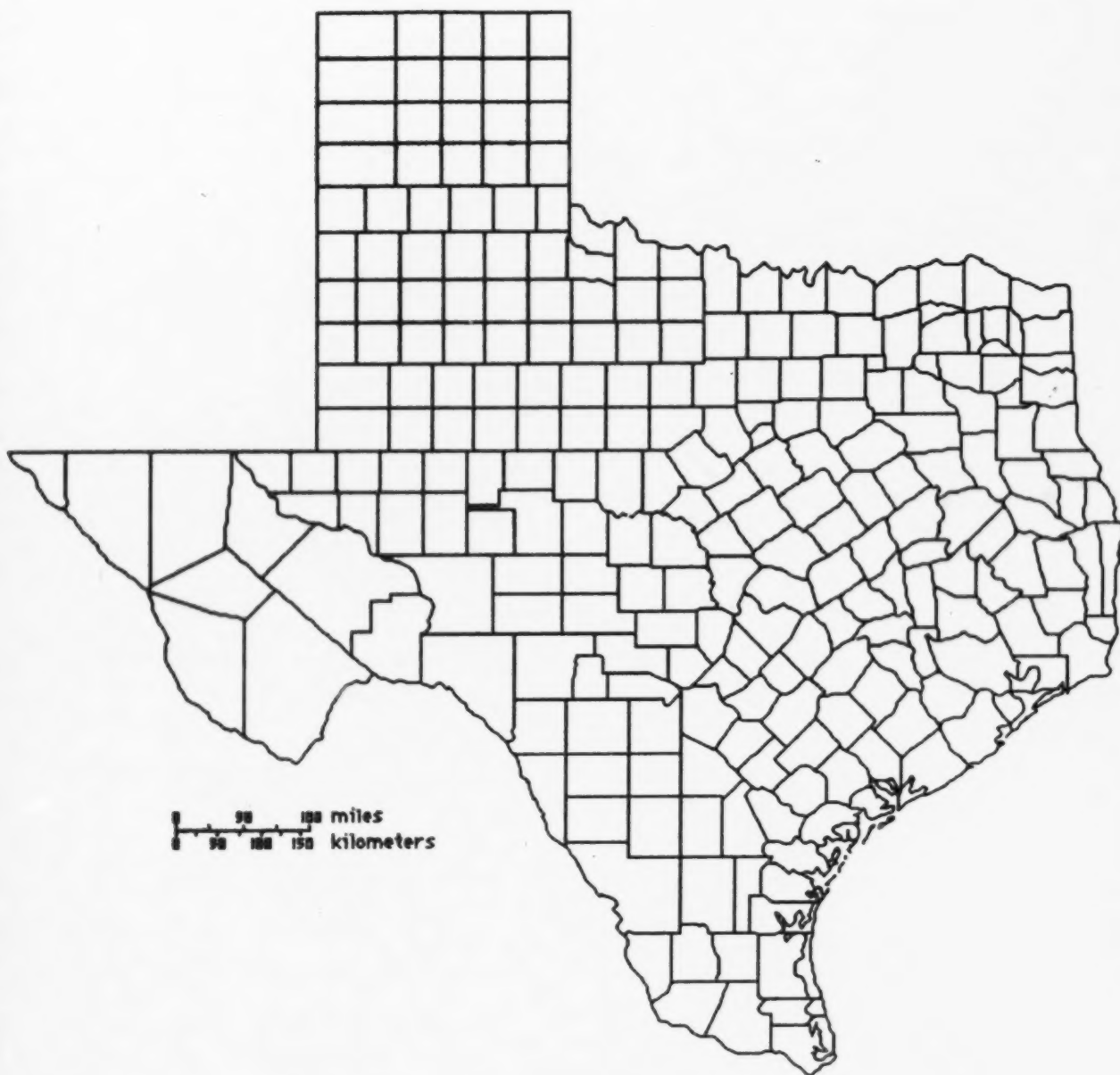
Here a whole new series of foreign things confronts him. His food and drink are placed before him in pottery vessels, the popular name of which - China, is sufficient evidence of their origin. His fork is a Medieval Italian invention. His spoon is a copy of a Roman original. He will usually begin the meal with coffee, an Abyssinian plant first discovered by the Arabs. The American is quite likely to need it to dispel the morning-after effects of overindulgence in fermented drinks, invented in the Near East; or distilled ones, invented by the alchemists of medieval Europe. Whereas the Arabs took their coffee straight, he will probably sweeten it with sugar, discovered in India; and dilute it with cream. Both the domestication of cattle and the technique of milking originated in Asia Minor.

If our patriot is old-fashioned enough to adhere to the so-called American breakfast, his coffee will be accompanied by an orange, domesticated in the Mediterranean region, a cantaloupe domesticated in Persia, or grapes domesticated in Asia Minor. He will follow this with a bowl of cereal made from grain domesticated in the Near East and prepared by methods also invented there. From this he will go on to waffles, a Scandinavian invention, with plenty of butter, originally a Near-Eastern cosmetic. As a side dish he may have the egg of a bird domesticated in Southeastern Asia or strips of the flesh of an animal domesticated in the same region. The latter will have been slated and smoked by a process invented in Northern Europe.

Breakfast over, he sets out for work. If it looks like rain, our patriot puts on outer shoes of rubber, discovered by the ancient Mexicans. He will also take an umbrella, invented in India. He then sprints for his train-- the train, not sprinting, being an English invention. At the station he pauses for a moment to buy a newspaper, paying for it with coins invented in ancient Lydia.

Once on board the train, our patriot settles back to inhale the fumes of a cigarette invented in Mexico, or a cigar invented in Brazil. Meanwhile, he reads the news of the day, imprinted in characters invented by the ancient Semites by a process invented in Germany upon a material invented in China. He scans the latest editorial pointing out the threat which foreign ideas pose to our American way of life. In total agreement our patriot will not fail to thank a Hebrew God in an Indo-European language that he is a one hundred percent (decimal system invented by the Greeks) American (from Americus Vespucci, an Italian geographer).

From: Ralph Linton, "One Hundred Per-Cent American," The American Mercury, vol. 50, 1937, pp. 427-429.







Three Models of Urban Development, or-- Is there a Pattern to the Growth of San Antonio, Texas?

Rick Montgomery
William Frederickson
Roger Sullivan
Peggy Weyel

Description

After three models of urban development (Burgess, Hoyt, and Harris-Ullman) have been presented in class, the students list characteristics of each model, compare and/or contrast these elements to each other, and list which elements of each model apply to San Antonio. The students also map various economic and governmental activities in San Antonio.

Learning Outcomes:

1. Students will be able to identify three important models of urban development (Burgess, Hoyt, and Harris-Ullman).
2. Students will be able to apply model characteristics to San Antonio's growth patterns and to support/defend opinions based upon this application.

Essential Elements; World Geography Studies, Grades 9-12:

- 1A compare physical and cultural geography
- 1B explain geographical terminology
- 1C describe geographical tools and methodologies
- 3C describe major economic activities of a region
- 3E explain the causes of population patterns, densities, and movements
- 4A analyze the site and situation of cities
- 4B describe functions of cities
- 4C understand patterns of urban growth
- 4D analyze movements of people, goods, and services in an urban environment

Fundamental Geographic Themes:

- Location
- Place
- Relationships within Places
- Movement
- Regions

Related Learning Opportunities:

- Economics
- Business

Classroom Procedures:

After a description and discussion of the three models of urban structure and functions of urban areas have been presented, the activity commences. The teacher will:

1. hand out the list of sites to be located ("Types of Businesses to be Located")
2. hand out a map of the city of San Antonio, Texas
3. have each student locate each site on a map of San Antonio and color code the sites according to these groups:
 - a. Automobile sales
 - b. Education
 - c. Finance
 - d. Food
 - e. Government
 - f. Malls
 - g. Military bases
 - h. Recreation
 - i. Services
 - j. Transportation

Note: Color coding on the maps should be decided by the teacher before the students begin, so that the resulting maps will be consistent. All students should use the same color for each type of business/governmental activity. If the maps are turned in for evaluation, this will make the maps easier to grade.

4. give students ample time to locate and code these items (20-30 min.)
5. Distribute copies of the three page handout describing the Burgess, Hoyt and Harris-Ullman models.
6. When the students have completed their study of the working and theoretical models:
 - A. They should determine which model most resembles San Antonio, Texas.
 - B. The teacher should ask the students, at random, to give an answer and to explain their response.
 - C. Written essays may also be assigned, at the teacher's discretion.

Note: Many different answers will be acceptable. The student will be evaluated upon the quality of his/her justification. There is no exact answer, since components of all three models can be found to exist in some form in the growth patterns of San Antonio.

Extended Activity:

Have the students create their own list of sites to be located within the city, or, have them study the nucleation of their area by creating lists of sites to be found in their quadrant of the city, and then proceed as above.

Evaluation:

Evaluation of this exercise lies with the students' being able to support, by oral or written means, the opinions and argument they present. The students' map work can also be submitted for a grade.

Appendix:

List of businesses (enclosed list)

Packet of 3 models of urban structure (Burgess, Hoyt, and Harris-Ullman)

Materials: for each student/group

1. Map of the city of San Antonio, available from Ferguson Map Company, San Antonio, Texas, for less than \$2.00. Gasoline company and other city road maps are alternative choices for the student maps.
2. List of sites to locate (see attached copy).
3. Marking pens or pins in 10 different colors (or suitable means of identifying the ten types of sites).
4. Directory for the city of San Antonio (or some means of locating addresses for sites whose location is unknown to the student).
5. Two-page copy of the three theories of urban growth (see attached copy).

HANDOUT:

Types of Businesses and Economic Activities to be Located

AUTOMOBILE SALES:

North Central Ford, Red McComb's Ford, Superior Pontiac, Ancira-Winton Chevrolet, Broadway Dodge, Smith Chevrolet.

EDUCATION:

San Antonio College, St. Philip's College, St. Mary's University Incarnate Word College, University of Texas at San Antonio.

FINANCE:

Broadway National Bank, National Bank of Commerce, Frost National Bank, MBank -Alamo, Interfirst Banks, Gross Bank.

FOOD:

Terminal Market, Farmers Market Union, Stockyards.

GOVERNMENT:

U. S. Post Office, John Wood Federal Courthouse, Federal Building, County Courthouse, Bexar County Jail, City Hall, Police Station.

MALLS:

Central Park, Ingram, McCreless, North Star
Twin Lakes/Mercado, Windsor Park, Wonderland.

MILITARY BASES:

Fort Sam Houston, Kelly AFB, Lackland AFB, Randolph AFB, Brooks AFB.

RECREATION:

Breckenridge Park, Water Park, Sea World, River Walk,
Hemisfair/Convention Center, Freeman Coliseum.

SERVICES:

Medical Center complex, Santa Rosa Hospital, Sewage Treatment Plant, BFI landfill.

TRANSPORTATION:

S.A. International Airport, Greyhound Bus Terminal, Amtrak Station,
VIA depot.

THREE MODELS OF URBAN DEVELOPMENT

1. **Burgess Model** (created in 1925 by sociologist E. W. Burgess; sometimes called the "Concentric Zone" model). Burgess saw cities in the 1920's as a series of six concentric rings or circles.

a. Central Business District (CBD) - the center of business activity and government with its support of legal, financial, and transportation centers.

b. Frame of the City - the support zone for the CBD. Businesses include transportation terminals, printing and graphics, hospitals, warehouses, wholesale, parking lots, and automobile dealerships.

c. Zone in Transition (ZIT) this zone is the slums. Its people are the poorest. Old residential houses are not in repair and land speculators await the city's growth and higher land prices. As the city grows this will become the new "frame zone."

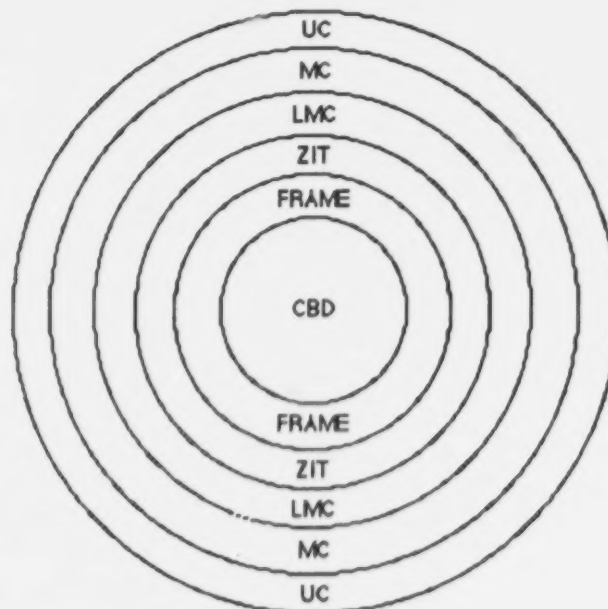
d. Lower Middle Class (LMC) in the 1920's this was the "zone of working men's homes."

e. Middle Class (MC)

f. Upper Class (UC)

Note: As you move outward through these zones, the homes are newer and larger, lot size is larger, and income is higher.

Concentric Zone Model



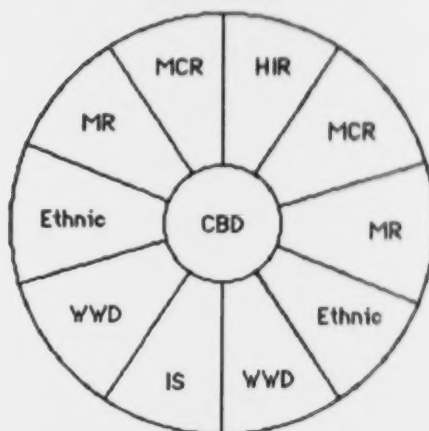
Hoyt Model OR "Sector" model. (Developed in 1939 by H. Hoyt, also a sociologist).

a. Central Business District (CBD) is surrounded by sectors rather than concentric zones.

b. High Income Residential (HIR) is in most desirable area.

- c. Middle Class Residential (MCR) is to be found on each side of the HIR.
- d. Minority Residential (MR) is found in areas adjacent to the MCR.
- e. Industrial Sector (IS).
- f. Wholesale and Warehouse District (WWD) near industrial center and closest to major corridors to the rest of the United States.
- g. Ethnic/Minority Residential - located between WWD and MCR.

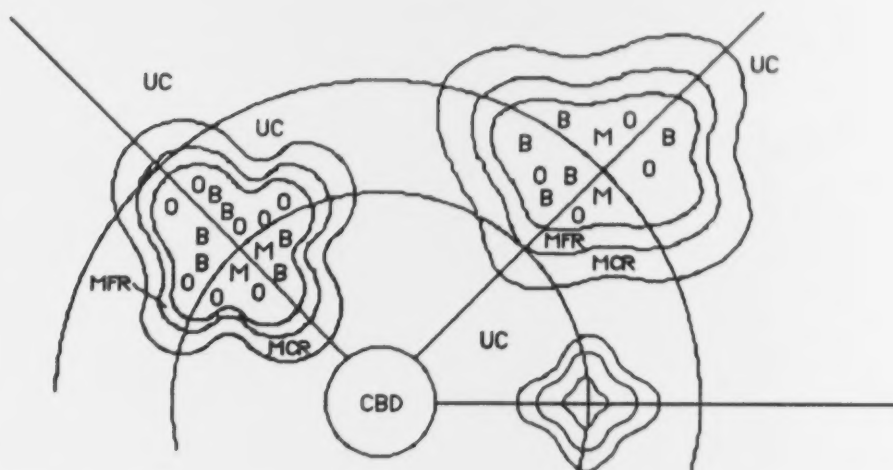
Sector Model



3. **Harris-Ullman or "Multiple Nuclei" model** (post World War II). This model city has many CBD's, centers, or "nuclei." The outlying nucleations or suburban CBD's are called Suburban Nucleations.

- a. Suburban CBD's are located at major highway or traffic intersections.
- b. Various support businesses are located in support or frame areas. around the suburban CBD's. MFR = Multifamily Housing, B = Small Business, O = Offices, M = Malls.
- c. Located farther away are the Middle Class Residential areas (MCR). The Upper Class Residential (UC), is even farther out from the center.

Multiple Nuclei Model



Community Planning

Jo Beth Oestrich
Jim Selby
Patty Taylor
Peter Walker

Description:

This activity involves students in identifying and locating places on their school campus. The students are given a blank map of their campus. They will identify and label the blank map. When they complete the location and labeling steps, they will discuss whether or not the high school is a microcosm of an urban center. The students will organize the layout of the school as they feel it should be and write a short essay or summary explaining/defending why and how they designed their model campus.

Learning Outcomes:

The students will be able to:

- 1) label an outline map of their school
- 2) compare their school campus as a microcosm of their city
- 3) discuss how the physical geography has influenced the development of the school and city.

Essential Elements; World Geography Studies, Grades 9-12:

4A analyze the site and situation of cities

4B describe functions of cities

Fundamental Geographic Themes:

Location

Place

Relationship within Places

Movement

Classroom Procedures:

1. The students will be given a blank outline map of their school.
2. The students will label the outline map, and turn it in for a grade.
3. The students will discuss how their school functions. They will be given the worksheet entitled Campus/Community as a discussion guide. They may also be asked to write answers prior to the discussion, for a daily grade, and refer to the handout to discuss the concepts in class.
4. Upon completion of this worksheet and class discussion the students should be able to compare their campus to the city in which they live.
5. It is important for the students to grasp the ideas that their community (school) might be identified as a microcosm of a city. Each site, campus and city, needs a form of government, services, health care, and planning. They also share other characteristics.
6. After comparing the "campus city" and the city in which they live, the students will take a labeled map, along with a blank piece of paper, and cut out and prepare their idea of how they would like their campus to be laid out. The students will restructure a campus they think would be most efficient.

7. After completing their idea of a city using the school shapes, the students must turn in a summary of why they arranged their ideal campus community the way they did, and justify each placement of a building(s) or whatever. The students must also explain why their school system is better than the existing system.
8. These activities are to be done individually.

Materials:

1. Blank map of the school
2. Labeled map of the school
3. Drawing paper (size will depend on the size of the labeled map, and teacher preference). We suggest typing paper size or larger.
4. Map pencils (students may color their maps if they would like, but it is not mandatory).
5. Worksheet called -- Campus/Community

Evaluation:

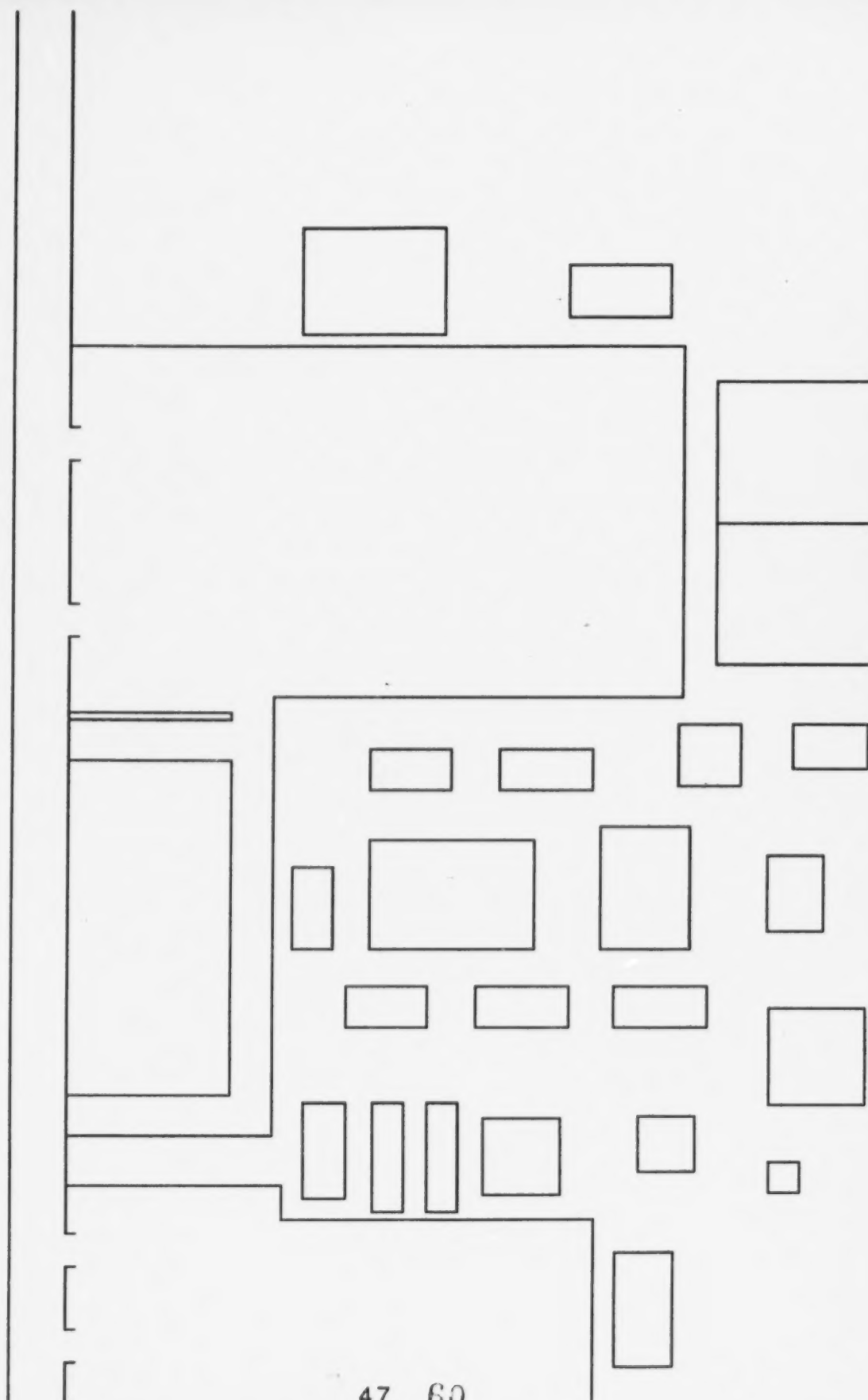
1. The students will be graded on their ability to properly identify the various buildings of their campus.
2. The students will be graded on their ability to accurately answer comparative questions of their campus and their city.
3. The students will turn in an essay, or a summary, relating why they arranged their city as they did, and how it is better than the present set up of the school.

CAMPUS/COMMUNITY WORKSHEET

Part I: Answer the following questions on a separate sheet of notebook paper to be turned in.

1. What is the population of our school?
2. Who heads the "government" of our school?
3. What routes of access do we have to and from our building(s)?
4. What type of protection do we have for our school community?
5. What type of health care is available in our school community?
6. What types of recreational options are available in our school and community?
7. Do we have room to expand?
8. What services are available in our community?
9. How do we maintain a clean environment?
10. What safety measures and regulations are provided in our school and community? (Example: alarm system)
11. What types of communication system do we have here?
12. What professional organizations are active in our school community?
13. What type(s) of landform(s) is the campus located near?

Part II: Use the above questions and answer them as they relate to the city we live in. Begin comparing the city with the school in your minds as you answer these questions, so you will be prepared for class discussion.





Discovering How Cities Function: An Urban Geography Field Trip

Marty Bock
Sandra Allen
Webster Averyt

Description:

This activity includes a package of materials designed to help a teacher implement a field trip that applies economic and urban geographic concepts as taught in class. The trip can be an enrichment activity for higher level students, or a reward for others. If the trip is used as a reward, selection can be based on an essay, project, contest, or other criteria.

Learning Outcomes:

The students will:

1. Analyze settlement patterns, urban location, structure, and function.
2. Describe the functions of cities.
3. Analyze movements of people, goods, and services in an urban environment.
4. Analyze environmental problems of an urban area.
5. Identify and apply the terms site and situation.

Essential Elements; World Geography Studies, Grades 9-12:

4A analyze the site and situation of cities

4B describe functions of cities

4D analyze movements of people, goods, & services in urban environments

4E analyze environmental issues associated with urban growth

Fundamental Geographic Themes:

Location (relative)

Place (observed characteristics)

Relationships within Places

Movement

Regions

Related Learning Opportunities:

Economics

History

Classroom Procedures:

1. Two weeks before the field trip, teach a unit on urban geography including terminology, models, and history. Have students analyze selected regions based on lecture material.
2. Two days before the field trip:
 - A. Distribute itinerary to the students (sample itinerary in Appendix A).
 - B. Discuss the elements which you wish to emphasize at each place to be visited (sample items in Appendix C).
 - C. Divide students into teams of three or four.

D. Instruct students to develop five specific questions to ask at each stop on the itinerary. As an option, ask each group to elect a person who will serve as official photographer for the group, to take photos of each place visited, and also group pictures.

E. Collect student questions at the end of the period. Before the next class meeting, teachers should compile a worksheet of questions which most interest students. Teachers should reassure students that the questions listed most frequently will be included on the list. Other questions, while important, may not be included for lack of space, but should still be asked by the individual student.

3. One Day Before the Field Trip:

A. Place questions on a transparency for use on the overhead projector.

B. Discuss each question with the students clarifying any points necessary.

C. Emphasize that at each stop students must obtain answers to the questions.

D. Note that question worksheets will be due as soon as the last stop has been visited.

E. Before the next class meeting, the teacher should go through the question worksheets.

F. At the next class meeting, return the question worksheets and discuss the questions and the field trip in general.

Field Trip Procedures:

1. Four weeks before the field trip, select the places to be visited and contact the public relations department. See Appendix B for suggested places, addresses, and telephone numbers.

2. Establish a link with the public relations contact person. Explain that your class is studying urban geography and request permission to visit the site in question. Also, ask if someone can meet the group to present a brief talk and answer questions.

3. After the initial arrangements have been made, send a follow-up confirmation letter. See Appendix A for a sample letter.

4. Prepare an itinerary based on the participating places. See Appendix A for a sample itinerary.

5. Notify the appropriate school administrator. See Appendix A for a sample letter.

6. Two weeks before the field trip, arrange for transportation via chartered bus or school bus depending on the circumstances.

7. Two weeks before the field trip, distribute information to students including the trip cost, lunch information, departure and return times, pick-up location, letters and permission slips to parents (in Appendix A).

8. Establish the deadline for returning parent permission forms. One week before the trip is adequate.

9. Three days before the trip, compile a list of the students going on the field trip. Distribute this letter to the teachers. At some schools, it may be necessary to have an administrator co-sign the letter (Appendix A).

10. On the day of the trip, check the roll using the list compiled earlier. Before leaving the campus, leave the list with the attendance office.

11. Notify the appropriate administrator of your departure and return.

12. On the day following the field trip, send a thank you letter to participants from the community. See Appendix A for a sample letter.

Appendix A: FIELD TRIP LETTERS

LETTER TO PARENTS:

Dear Parent or Guardian,

Our field trip to _____ is an enrichment activity for our geography classes. There will be four adults going on the trip and about eighty students.

Depending on the number of students going, the cost of the bus will be between \$7.00 and \$8.50. In order to determine the exact cost, it is necessary to know how many students are participating as soon as possible.

Please sign the permission slip and return by (date). The cost of the bus is the same, no matter how many students go. Therefore, once the rate per student is determined, and the student commits himself/herself to go, the money cannot be refunded. If you will return the permission slip by (date), I will be able to tell the students the exact cost the next day.

Thank you for your cooperation. We look forward to an interesting and rewarding time. Please do not hesitate to call me at (number) if you have any questions.

Sincerely,

LETTER TO TEACHERS:

Dear Teachers:

Please excuse the following students on (date and time). They will be involved in a geography field trip to (place or places). You may ask the students to share some of their experiences upon their return.

Thank you for your cooperation. (Students listed by alphabetical order and grade or class.)

Sincerely,

LETTER TO ADMINISTRATOR:

Dear _____,

My geography classes have completed a unit on urban geography, and many interesting and provocative questions arose. In order to give the students a practical viewpoint, I have planned a field trip focusing on urban sites. The trip plans are to leave the school campus at (date and time) via school bus/charter bus and return by (time). The attached itinerary indicates the time we will visit each place. The people who will make presentations at each site have been contacted and are looking forward to our visit.

The students and I would like to invite you to be our guest on the trip. We believe this is a unique opportunity to experience a side of urban life which is seldom seen. Please let us know of your decision by (date). If you have questions or concerns, please do not hesitate to contact us in Room_____.

Sincerely,

CONFIRMATION LETTER

Dear ,

Thank you very much for agreeing to meet our geography class on (date) at (time). As noted when I talked with you, our class recently completed a study of urban geography. Therefore, the students would like to hear a brief description of the services you provide. Also, the students would like to ask some questions about your operation.

Again, thank you. I am looking forward to seeing you on (date).

Sincerely,

THANK YOU LETTER

Dear ,

Our geography class would like to thank you for the time you spent with us on our recent field trip. Your presentation and the answers to our questions helped to make our field trip a wonderful learning experience. Certainly, it is people like you who enhance public education.

Again, thank you for your help.

Sincerely,

SAMPLE ITINERARIES:

These are two sample itineraries for the proposed field trip. Sample A focuses on early morning city functions, and Sample B focuses on general city functions.

Sample A:

6:15 a.m.	Meet in school parking lot
6:30-7:15 a.m.	Hospital or Police Department
7:30-8:15 a.m.	Newspaper
8:30-9:15 a.m.	Radio Station or T.V. Station
9:30-10:45 a.m.	Fast Food Restaurant/Supermarket
11:00 a.m.	Arrive at school parking lot

Sample B:

7:45 a.m.	Meet in school parking lot
8:00-8:45 a.m.	Hospital or Police Department
9:00-9:45 a.m.	T.V. or Radio Station
10:00-10:45 a.m.	Airport
11:00-11:45 a.m.	Power Plant
12:00-1:30 pm.	Lunch
1:45-2:30 p.m.	Newspaper
2:45 p.m.	Arrive at school parking lot

Appendix B: AUSTIN FIELD TRIP SITES

The following locations are possible stops for the field trip. The addresses and phone numbers are starting points for contacting an appropriate person at each location.

Waste Treatment

Industrial Waste
7113 E. Milk Blvd.
926-0316

Newspaper

Austin-American Statesman
445-3500

Police Department

Austin P D
715 E. 8th Street
480-5000

Fire Department

Austin Fire Dept.
Public Education
1621 Festival Beach Road
477-9984

Radio Station

K-98
1219 W. 6th
474-9233

Airport

Austin Municipal Airport
472-5439

Fast Food

McDonald's Restaurant
Central Office
704 E. Wonsley
837-2551

Supermarket

HEB General Office
1825 E. 38 1/2 Street
477-6552

Water and Wastewater Treatment

Water and Wastewater Dept.
1524 S. IH-35 Suite 200
445-3000

Distributor

Coca-Cola and Dr. Pepper Bottling Co.
9600 Burnet Road
836-7272

Power Plant

L.C.R.A.
3700 Lake Austin Blvd.
473-3200

City Offices

City Hall
City Planning Office
124 W. 8th
499-2000

T.V. Station

KTBC - T.V.
119 East 10th
476-7777

Military

Bergstrom A.F.B.
479-4100

Supermarket

Tom Thumb Page Division Office
1612 Ohlen Road
836-6212

Hospital

Brackenridge Hospital

Appendix C: WHAT STUDENTS SHOULD OBSERVE

In each case the students should be encouraged to investigate the geographical factors involved in the activities and functions of a city.

FEATURES TO OBSERVE AT PLACES VISITED

WASTEWATER TREATMENT: Students should observe how sewage for a large city is handled. How is the water moved around the city? Where does the treated water go? Are there any geographic factors that are important to waste and wastewater treatment and disposal?

T.V., RADIO, AND NEWSPAPER: Students should observe the major forms of information distributed on local, national, and international levels. Is communication a type of movement? How is communication important to a place or region? Can new information change a region's characteristics?

DISTRIBUTOR: Students should observe how products are distributed to the population. What geographical factors are considered in transporting products to consumers? Where did the products originally come from?

POWER PLANT: Students should observe how electrical power is provided to an urban population. How is power transported? How is the power generated? What physical features are important to the generation of power? What environmental concerns does the power company have to solve in order to operate?

POLICE/FIRE DEPARTMENTS: Students should observe how and what types of service are provided to the public. Do fires or crimes tend to occur in certain areas or regions of the city or county? Where are the best locations for a fire or police station in the city? What geographical factors should be considered in locating a police or fire station?

AIRPORT: Students should observe how the airport serves the city and the surrounding area. Where do most of the airplanes come from and go to? Other than people, what goods are transported by air? How does the airport affect the surrounding area? What physical and other features should be considered in locating an airport?

MILITARY: Students should observe how military bases came to be located at this site. Where do people who live on or near the base live and shop?

SUPERMARKETS & FAST FOOD: Students should observe how and who is served. Where do fruits and vegetables sold there come from? What factors are considered in finding a good location for a supermarket or restaurant?

CITY OFFICES: Students should observe how city government functions. What factors are considered in urban planning for the future? What physical, cultural, and economic geographic qualities of the city draw people to this area?

HOSPITAL: Students should observe what services are provided and how. Where is the best location for a hospital? What other types of economic activities are located near the hospital?

Zoogeography at the Zoo: A Geographical Field Trip

Melissa Kraft
Nancy Crockett
George Legg
Debi Elliot

Description:

Students will map physical regions of specified continents, visit a zoo to locate animals that are representative of that continent, and hypothesize about the interrelationships of humans, animals, and physical features. Appropriate for grades 9-12.

This activity is designed to help students become more familiar with the distribution of animal populations worldwide. An extended outcome of this activity is that students will be given an opportunity to speculate about why some regions of the world have larger populations of endangered animal species than other regions do. This exercise is also extremely flexible so that the teacher may adapt it for a wide variety of learning situations. For example, rather than having the students compare animal species on a global scale, the teacher may choose to have the students compare the animals of two specific continents. Another idea is to have the students compare the distribution of animals in one specific continent or hemisphere.

Learning Outcomes:

1. Students will be able to map at least ten different animal species, and identify the correct environmental region for their specified continent.
2. Students will be able to identify the various environmental regions of their designated continent (as identified in Goode's Atlas) and transfer this material to a base map of the continent coloring it appropriately and making a key that accurately corresponds to their map.
3. Students will be able to place animal classification symbols in the appropriate environmental regions.
4. Students will be able to hypothesize about how factors such as climate, physical geography, and the presence of human populations, each affect the indigenous animal populations.

Essential Elements; World Geography Studies, Grades 9-12:

- 1A compare physical and cultural geography
- 1B explain geographical terminology
- 3A understand the criteria for determining regions
- 3F analyze forces that cause changes in the landscape of regions and countries

Fundamental Geographic Themes:

- Location (relative location)
- Place -- how human activities alter the physical character of a region.

Relationships within Places -- realize that places can be damaged, destroyed or improved through human actions.

Regions -- understand that regions are basic units of geographic study; note that regions vary in size from very small to quite large.

***Note:** this exercise has been divided into three separate lessons that would not necessarily have to be done over the span of three consecutive days, but could be spread out, with one lesson per week.

Related Learning Opportunities:

Biology

Writing Skills

Classroom Procedures:

Lesson 1.

1. Explain that this activity shows how animal populations are distributed over a continent, with respect to environmental regions, and how humans can affect their distributions.
2. Divide students into six groups based on continental divisions, one continent per group - do not be concerned with overlap of continent borders, it will not affect the overall outcome of the project.
3. Distribute several base maps of the specified continent to each group of students.
4. Using Goode's World Atlas have students use the environmental map to locate the various physical regions of their continent. Students will then sketch in the various regions, identify them on the map by name, assign a color, and label the map with an appropriate title and key.

Lesson 2.

1. When the students arrive at the zoo to do their field work, distribute to each group a couple of copies of the Data Sheet (master is included here) on which they will record their information.
2. Students tour and study the zoo, noting population distributions in general, specifically noting animals that live on their assigned continent.

Lesson 3.

1. After returning to class, students will draw on their continental environmental regions map the symbols for each of the animal types that they recorded. A sufficient number of symbols should be used to show the regional range of each animal. A legend should show each group of symbols and the name of the animal each particular symbol represents.

***If the animal is an endangered species, underline its name in red ink.**

2. When students have completed this section of the activity, the teacher will collect the best map from each group and then assemble them into a mounted world map.

Lesson 4.

1. Using the poster made from the group efforts, the teacher will lead the class in an oral discussion so that students can hypothesize about the data they have collected and how it is interrelated to the other groups' data. (See the list of questions to be used as a springboard for this discussion).

Materials:

1. Base maps for each of the designated continental regions
2. Goode's World Atlases: a classroom set
3. Map pencils, markers, pencils
4. Generalized data collection sheets
5. A classroom set of a good encyclopedia for reference
6. A large sheet of poster board on which the teacher will construct the world map.

Evaluation:

1. Participation of group members during each phase of the exercise.
2. Quality of the map produced by each group.
3. Oral participation in group discussion.

References:

Goode's World Atlas, 1987 edition, Rand McNally

Appendix:

Data collection sheet for field trip
Questions to stimulate oral discussion
Six continental base maps

Questions for Discussion

Note: Students should have their atlases on their desks ready for use during this exercise.

1. a) Why are most animal species only found in one specific region of a continent?
b) What factors might broaden their distribution?
2. Using a specific animal found on our world map, explain to the class what is happening in the terms of human intervention to that animal's natural habitat.
3. a) Choose a particular animal and describe the region in which it is found.
b) What is special about this region that might make it a good place for that particular animal to live in?
4. a) Why do you think the (name of an endangered animal) is an endangered animal?
b) What factors do you think have contributed to its endangerment?
c) Do these factors seem to be the same from continent to continent?
5. a) Can you make any hypotheses concerning climate or environmental regions in regards to the distributions of the animals within a specific continent?
b) Do similar species occur in similar regions on different continents? In other words, would we expect to find representatives of the cat family in both the jungle regions of Africa and Asia?
6. a) Do you feel that the environment of the animals in the zoo resembles their natural habitats?
b) What effects might an artificial environment have on an animal?
c) Do you think that there is a corresponding correlation of the effects of environment on humans? If so explain.

Continent: _____

Group Number: _____

DATA COLLECTION SHEET

		GENUS	Species	Common Name	Habitat	Range	Endangered ?
Mammals	1.						
	2.						
Reptiles	1.						
	2.						
Amphibians	1.						
	2.						
Birds	1.						
	2.						
Marsupials	1.						
	2.						

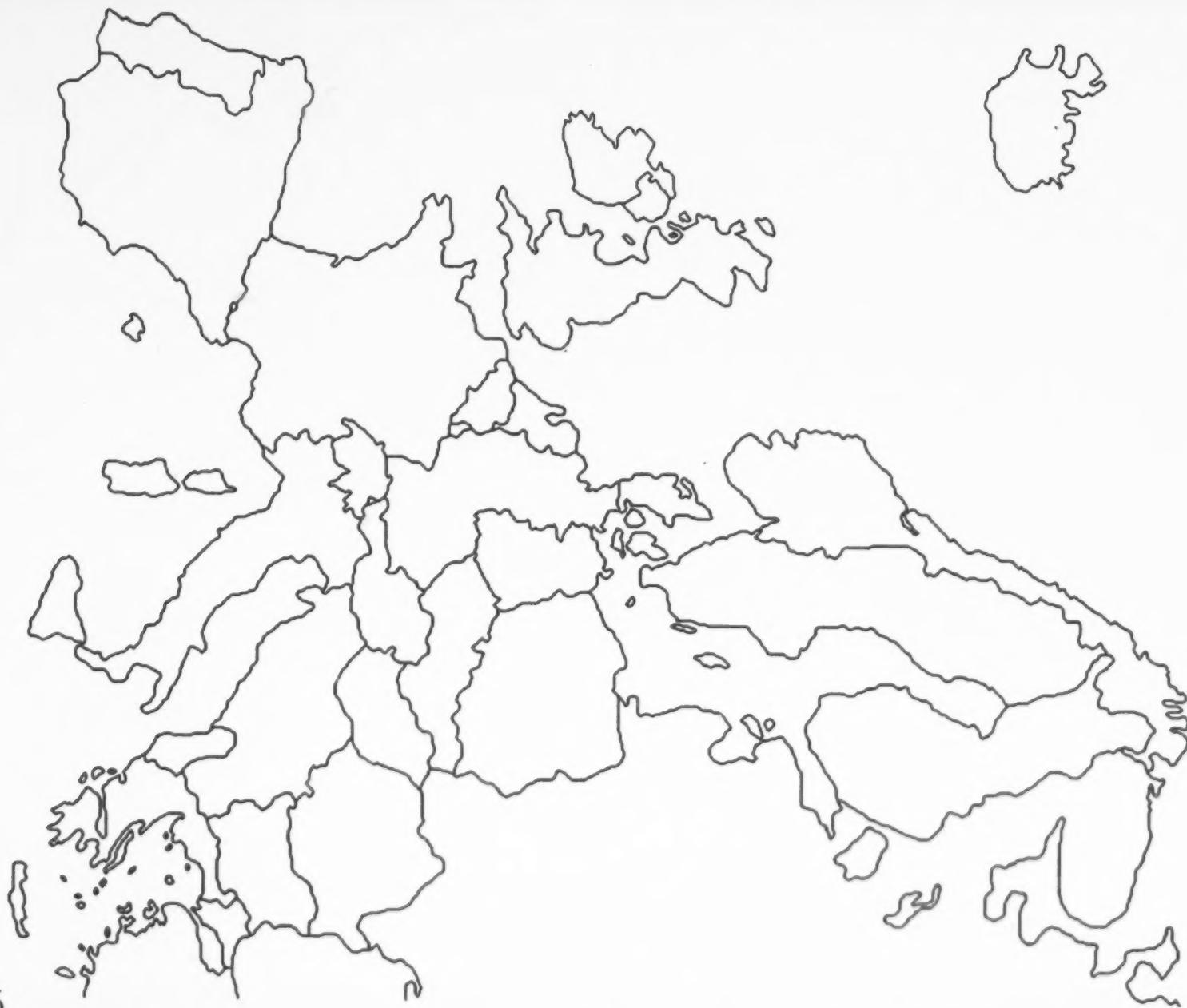
1. Include at least three animal species that are considered an endangered species on this chart.
2. Design a small, clearly formed symbol for each animal species you decide to use in this exercise. These symbols will be drawn on your map in black ink or marker. Underline endangered species in red.





74

60





77





79

African Scramble

Deborah Allen
Debra Baker
Terry Pittsford
Jerry Shipley

Description:

Using a blank outline map of Africa and regional puzzle pieces, students will correctly locate the five regions of Africa. After unscrambling the names of African countries, rivers, and lakes, they will locate these features on a map.

Learning Outcomes:

When students have completed this activity they will:

1. Be able to identify the countries, lakes and rivers in Africa and their relationship to one another (location and spatial).
2. Gain an understanding of the tremendous size of the continent of Africa.
3. Enhance their knowledge about the nations of Africa in relation to current events (they will know where that country is located if reading or hearing about it in the news).

Essential Elements; World Geography, Grades 9-12:

- 2C describe the physical setting of a selected area
- 2D locate the major natural resources of the world
- 2E locate the major nations and regions of the world

Fundamental Geographic Themes:

Location
Place (physical characteristics)
Regions

Related Learning Opportunities:

Art
Language Arts (spelling)

Classroom Procedures:

This activity can serve as a culminating or review lesson on Africa's regional geography. Students should have already studied the regions and countries. This activity can be done by individual students or by groups of two. The time allowed for this activity should be one class period.

1. Hand out blank outline maps of Africa and the puzzle pieces for the five regions. For the puzzle pieces, take a map of Africa with national boundaries and cut along regional boundaries given on the list of countries by region. We suggest making a laminated classroom set of blank maps and puzzle pieces.
2. Hand out the list of scrambled names and have students write the correct answer next to each one. **Note:** Where the name of a country or

water body has recently changed, both names are given, with the older one in parentheses.

3. Have students place the regional puzzle pieces on the blank map. Depending on the ability level of the class and your own teaching methods, you may/may not allow the class to use atlases.

4. Hand out an answer sheet to the students. Explain that all numbered areas represent countries and letters represent water bodies on the map. The students are to correctly identify each country, lake and river and place their answer next to the corresponding number or letter on the answer sheet. Students may use their list of unscrambled names to find the correct spelling of a place or feature name.

5. Upon completion, students turn in both the unscrambled names and the answer sheet for grading, or they may be graded in class.

Note: If you have low achieving students, you may capitalize the first letter of the names and use lower-case letters for the rest of the name.

Materials:

Blank outline map of Africa
Regional puzzle pieces labelled with numbers and letters
World atlas (Goode's or textbook)
List of scrambled names of countries, lakes and rivers
Answer key for scrambled names

Evaluation:

Teacher observation of student participation in activity.
Graded worksheets on scrambled names and answer sheet for identifying countries, lakes and rivers.

Enclosed Materials:

Blank outline map of Africa
Blank Africa map with national boundaries
Regional puzzle pieces
List of countries by region, and major lakes, & rivers.
Worksheet of scrambled names of countries, lakes, and rivers
Answer sheet for map exercise
Answer key for map exercise

Africa Scramble answer key:
Countries by region, lakes, and rivers.

NORTH AFRICA

Egypt
Morocco
Algeria
Tunisia
Libya
Sudan

EQUATORIAL AFRICA

Central African Republic
Cameroon
Equatorial Guinea
Gabon
Congo
Zaire

EAST AFRICA

Ethiopia
Kenya
Uganda
Rwanda
Burundi
Tanzania
Somalia

RIVERS

Zaire (Congo)
Nile
Zambezi
Niger

LAKES

Victoria
Tanganyika
Malawi (Nyasa)

WEST AFRICA

Mauritania
Mali
Niger
Nigeria
Ivory Coast
Chad
Benin
Togo
Ghana
Burkina Faso (Upper Volta)
Liberia
Senegal
Gambia
Guinea-Bissau
Guinea
Sierra Leone

SOUTHERN AFRICA

Angola
Zambia
Malawi
South Africa
Swaziland
Mozambique
Zimbabwe
Botswana
Lesotho
Namibia
Madagascar

NAME: _____

African Scramble Directions: Unscramble the names of the following countries, lakes and rivers located in Africa. Place your answer in the blank beside each scrambled word. Please spell each answer correctly.

NORTH AFRICA

1. TGEYP _____
2. OMRCCO _____
3. GRAELIA _____
4. STUIANI _____
5. YABIL _____
6. NSUAD _____

WEST AFRICA

7. NAITAIRAMU _____
8. ILMA _____
9. GRINE _____
10. GRENAII _____
11. YROVI STOAC _____
12. DAHC _____
13. ENNIB _____
14. GOOT _____
15. NAHAG _____
16. KNARIBU SOFA (PREUP TOVAL) _____
17. BRELAI _____
18. GENSALE _____
19. MAGBAI _____
20. UNIAGE-SAUBIS _____
21. NEAGUI _____
22. ERRASI ONELE _____

EQUATORIAL AFRICA

23. TRACLEN RICFANA CILREBPU _____
24. NOMORACE _____
25. QUORLIATAE UGEANI _____
26. BANGO _____
27. GOCON _____
28. RAIZE _____

EAST AFRICA

29. EPATHOII _____
30. YANKE _____
31. DUGANA _____
32. WANARD _____
33. RUBDUIN _____
34. ZANANAIT _____
35. MALAOIS _____

SOUTHERN AFRICA

36. GOLANA _____
37. BAZAMI _____
38. WAILAM _____
39. THOUS CRAFTIA _____
40. SAZILWAND _____
41. QUEMOMAZIB _____
42. WEBBAMZI _____
43. SWABTONA _____
44. THOSEOL _____
45. BAMIANI _____
46. SCARAGAMAD _____

RIVERS

47. RAIZE (GOCON) _____
48. LIEN _____
49. BEZZAMI _____
50. GRINE _____

LAKES

51. TRAVOICI _____
52. KYANTIGANA _____
53. WAILAM (SANAY) _____

Name: _____

ANSWER SHEET: MAP EXERCISE

1.	_____	28.	_____
2.	_____	29.	_____
3.	_____	30.	_____
4.	_____	31.	_____
5.	_____	32.	_____
6.	_____	33.	_____
7.	_____	34.	_____
8.	_____	35.	_____
9.	_____	36.	_____
10.	_____	37.	_____
11.	_____	38.	_____
12.	_____	39.	_____
13.	_____	40.	_____
14.	_____	41.	_____
15.	_____	42.	_____
16.	_____	43.	_____
17.	_____	44.	_____
18.	_____	45.	_____
19.	_____	46.	_____
20.	_____	A.	_____
21.	_____	B.	_____
22.	_____	C.	_____
23.	_____	D.	_____
24.	_____	E.	_____
25.	_____	F.	_____
26.	_____	G.	_____
27.	_____		

Answer Key: Map Exercise

- | | |
|--------------------------------|------------------------|
| 1. Morocco | 28. Cameroon |
| 2. Egypt | 29. Tanzania |
| 3. Sudan | 30. Somalia |
| 4. Libya | 31. Rwanda |
| 5. Tunisia | 32. Ethiopia |
| 6. Algeria | 33. Burundi |
| 7. Guinea-Bissau | 34. Kenya |
| 8. Chad | 35. Uganda |
| 9. Mauritania | 36. Madagascar |
| 10. Niger | 37. Lesotho |
| 11. Senegal | 38. Swaziland |
| 12. Nigeria | 39. Angola |
| 13. Mali | 40. Zimbabwe |
| 14. Gambia | 41. Namibia |
| 15. Benin | 42. South Africa |
| 16. Sierra Leone | 43. Botswana |
| 17. Burkina Faso (Upper Volta) | 44. Mozambique |
| 18. Togo | 45. Zambia |
| 19. Liberia | 46. Malawi |
| 20. Ghana | A. Lake Victoria |
| 21. Ivory Coast | B. Zaire (Congo) River |
| 22. Guinea | C. Zambezi River |
| 23. Central African Republic | D. Lake Malawi (Nyasa) |
| 24. Congo | E. Nile River |
| 25. Zaire | F. Lake Tanganyika |
| 26. Gabon | G. Niger River |
| 27. Equatorial Guinea | |



87





ABC's of Africa

Cam White
Jake Ritzen
Joy Scharf
Frederica Kinnard

Description:

This activity is a culminating project for a two to four week unit on Africa. Students will be divided into groups to create travel brochures as case studies on African countries. The groups will be responsible for presenting the brochures to the class using music, clothing, food, skits, and other visual aids. Time: 2-3 days, Level: 9-10th grades.

Learning Outcomes:

Students will be able to:

1. List and analyze characteristics of African countries used as case studies.
2. List and analyze political and physical features.
3. List and analyze customs and traditions.
4. Identify and locate physical and political features on a map of the country.
5. Use the "ABC's of Culture" to compare countries of Africa.

Essential Elements; World Geography Studies, Grades 9-12:

- 1A compare physical and cultural geography
- 1B explain geographical terminology
- 2A locate and describe major landforms and features of the Earth
- 2C describe the physical setting of a selected area
- 2D locate the major natural resources of the world
- 2E locate the major nations and regions of the world
- 3C describe major economic activities of a region
- 3E explain the causes of population patterns, densities, and movements
- 3I describe the agricultural bases of regions
- 4A analyze the site and situation of cities

Fundamental Geographic Themes:

Location
Place
Relationships within Places
Regions

Related Learning Opportunities:

Language Skills
Art
Economics
International Relations

Classroom Procedures:

1. This activity should be the culminating lesson for a two to four week unit on Africa. To focus the students' attention on the activity the teacher might do one or more of the following: (1) show a film comparing

countries in Africa, (2) have the class read an article from "National Geographic" on Africa, (3) invite a guest speaker to talk about Africa.

2. Following the focus activity, the teacher should briefly discuss the activity. Students will be placed into groups representing various African countries. The students will then plan and create travel brochures for their country. They will also be responsible for planning a creative way to present the information to the class. It is important that the teacher discuss the "ABC's of Culture" again at this time (see "ABC's of Culture").

3. The teacher should then introduce Ghana as an example of a brochure students will be creating in groups as part of the culminating activity on Africa (see "ABC's of Culture"). The teacher might want to play music from Ghana and/or dress in an appropriate costume to again focus the students' attention.

4. Teacher lists the following countries on the board or overhead as groups of students will be divided into: South Africa, Angola, Kenya, Egypt, Libya, Morocco, Nigeria, Zaire, Mozambique, Ethiopia (or other countries).

5. Teacher breaks class into groups. Each group should elect a leader and recorder. Members of the group must be divided to research the "ABC's of Culture", map and physical features, flag, current events, and things to see and do. Teacher decides amount of ABC's appropriate for the class to research (see ABC's of Culture).

6. Following is a list of things which should be included in the brochure: map with 3 major cities and at least 1 major lake, river, and mountain, flag, "ABC's of Culture," current events, things to see and do, and pictures. Students may also include a mural of their culture if this method has been discussed. An example of other types of information that should be included in the brochure is shown at the end of this activity.

7. Students work in groups to plan a way to present information and the brochure: panel discussion, skit, role playing, etc. The inclusion of music, costumes, and/or food from the country should result in better grades. activity would work best if students have had an opportunity to do skits, or role playing during previous activities; if not, the teacher may wish to show examples or discuss expectations for the presentation.

8. Students work in groups on case studies, brochures, and presentations, and then present. Teacher circulates, offering assistance, ensuring that students remain on task.

9. Following the presentations, there should be a debriefing discussion. Sample questions include:

Which country would you rather visit and why?

Which country has the highest standard of living?

What kind of effect might that have?

Which country has the greatest potential for becoming a world power, and why?

List some similarities and differences between the U.S. and any of these countries.

What is the major problem faced by each country and how should they go about solving it?

Materials:

Textbook

Reference and Travel Books

Records

World Atlas

All of these are readily available in any school library.

Evaluation:

Observation, presentation, brochures, activities that are graded subjectively. The teacher may wish to list requirements for certain grades prior to the activity.

Appendix:

"ABC's of Culture"

Sample brochure on Ghana

ABC's of Culture

- A - Appearance
- B - Belief System
- C - Communication
- D - Dates
- E - Entertainment
- F - Food
- G - Government
- H - Housing
- I - Information
- J - Jobs
- K - Kind of Environment
- X - Extra Information

Ghana: Customs and Traditions

Ghana was founded by Portuguese explorers in 1471 and became known as the Gold Coast. The gold and slave trade were the early means of success for the colony. Ghana became a British colony and was eventually granted independence in 1957. It was the first colony to receive its independence after the war. Since independence, Ghana has experienced various forms of military rule. The current military leader is Jerry Rawlings.

Most people in Ghana are farmers. At one time people migrated to Nigeria, but recently people have returned to Ghana causing shortages of food, housing, jobs, and water.

The official language is English. Religious practice includes traditional African religion (45%), Christianity (43%), and Islam (12%). Education has improved tremendously but literacy remains at 33%. Annual income is approximately \$800.00. The currency system is the new Cedi. The population is approximately 14.2 million.

Housing in Ghana is a mixture of western styling and African with rectangular houses including mud walls and thatched roofs. Dress consists of brightly colored Kente cloth which men wrap around and women use for blouses and skirts, although western clothing is increasing in popularity.

Accra is the most important city. Things to see and do in Ghana include the Makova Market, National Museum, music clubs, beaches, castles, game reserves, and the University of Ghana. Quality of transportation is improving with more paved roads, water and air traffic.

Materials:

Austin Public Library - "Ghana: Music of Northern Tribes" LYR (LP) 7321, "Ghana, Nigeria, etc." LYR (LP) 7328

Africa:1986, Skye, 1986., Africa Encyclopedia, Oxford Press, 1974., Cambridge Encyclopedia of Africa, 1981, World Book Encyclopedia, 1986., Strand and Davidson, Ghana: An African Portrait, Aperture, 1976.

Rivers of Africa

Rick Montgomery
Roger Sullivan
Peggy Weyel

Description:

Students will trace one of four selected African rivers from its mouth to its source (or the reverse) and, using selected charts and maps, be able to identify nations through which the river flows, the landforms through which it cuts, rainfall of the areas, mineral deposits, potential for water power development, and areas of population concentrations.

Learning Outcomes:

Students should be able to:

1. trace the course of a river from its mouth to its source, or the reverse.
2. locate and name countries through which the river flows.
3. collect data from several charts and maps.
4. draw conclusions of relationships between population distributions, mineral resources, rainfall distributions, and other factors of location, from synthesized data.

Essential Elements; World Geography Studies, Grades 9-12:

- 1A compare physical geography
- 2A locate and describe major landforms and features of the Earth
- 2C describe the physical setting of selected regions
- 2D locate the major natural resources of the world
- 2E locate the major nations of the world
- 3B analyze the impact of environment on ways of life in a region
- 3C describe the major economic activities in a region
- 3E explain the causes of population patterns, densities, and movements
- 3F analyze forces that are causing changes in the landscapes of regions and countries
- 3H determine kinds and sources of energy for regions and countries

Fundamental Geographic Themes:

Location
Place

Related Learning Opportunities:

Mathematics
Economics
Earth Science

Classroom Procedures:

1. Write the names of the four rivers on the board (Niger, Nile, Zaire, and Zambezi).
2. Hand out the blank maps on which the student will note the prescribed data.

3. Hand out the atlases and inform the students of maps that will be particularly useful in completing this exercise. Reference: Goode's World Atlas, pp. 45, 218-219, 220-221. All references are to Goode's World Atlas, 17th Edition.

4. Inform the students of data to be discovered, mapped, and or listed:
- a. the river's course. (Goode's pp. 220-221)
 - b. nations through which the river flows, in order from mouth to source. (Goode's pp. 220-221)
 - c. population centers along the river. (Goode's pp. 220-231)
 - d. mineral deposits along the river course. (Goode's pp. 219)
 - e. type of vegetation and its potential commercial use (if any). (Goode's pp. 219)
 - f. landform features including any feature that disrupts navigation of river. (Goode's pp. 220-231)

5. The teacher should clarify any questions of task and procedure, and then the students begin work.

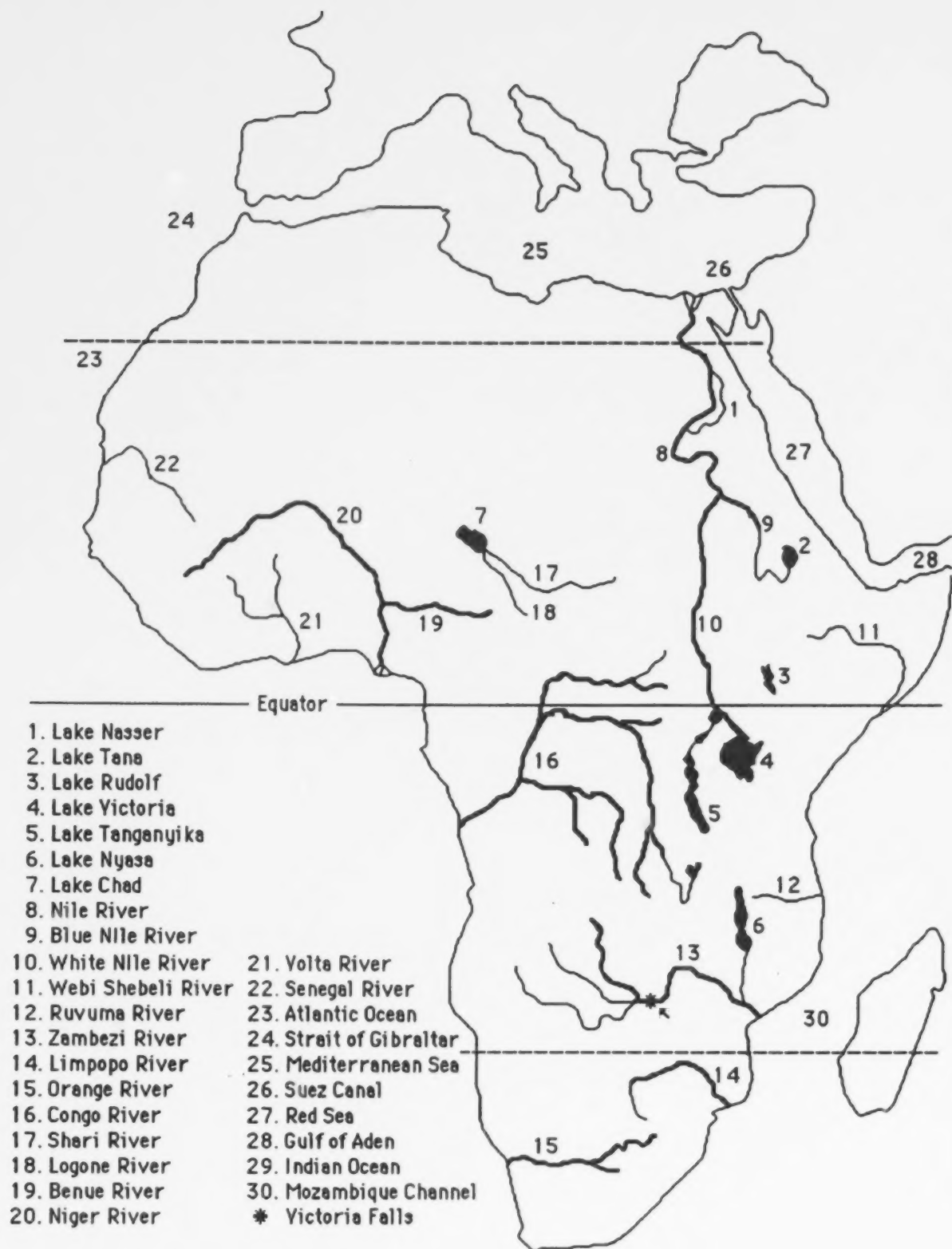
Materials:

- 1. Outline maps of Africa for each student.
- 2. Copy of Goode's World Atlas for each student.

Evaluation:

Student success will be measured by several criteria-- did the student:

- 1. locate the assigned river correctly?
- 2. locate and identify the correct countries?
- 3. locate and read the correct map or chart for the required information?
- 4. correctly interpret and use the data read from the map or chart?





Exploring Africa

Marty Bock
Sandra Allen
Webster Averyt

Description:

This map activity will help students become familiar with the physical and cultural geography of Africa, and the early explorations of Africa. Students will also develop skills for organizing a trip.

Learning Outcomes:

The students will learn to:

1. identify the physical, political, and cultural features of Africa.
2. recognize historical explorations of early Africa.
3. work together in a cooperative environment.
4. recognize changes in the political boundaries of African countries.
5. use resource materials to help plan a trip through Africa.

Essential Elements; World Geography Studies, Grades 9-12:

- 2C describe the physical setting of selected regions
- 3B analyze the impact of environment on ways of life in a region
- 3C describe major economic activities of a region
- 3D determine the economic, social, and cultural interchange among regions and countries
- 3F analyze forces that are causing changes in the landscapes of regions and countries
- 3I describe the agricultural base of regions

Fundamental Geographic Themes:

- Location (relative and absolute)
- Place (physical and human characteristics)
- Relationships within places (both cultural and physical)

Related Learning Opportunities:

- English
- History

Classroom Procedures:

This activity follows a unit of a week or two of teaching about the African continent, using lecture, discussion, films, filmstrips, and other teaching methods and media. This can be a culminating activity after showing the filmstrip, "World Climate and Landscape Regions."

After the unit is completed, arrange the students in pairs. Have students move the desks so that the partners face each other, so that they can work together easily. The task for the pair is to plan a trip that retraces the routes of early African explorers, and describe the physical, political, and cultural features and aspects of the area.

Assign each student team one of the exploration routes listed under "Kingdoms and Empires," on the Africa, Its Political Development, supplement map in National Geographic, February, 1980.

Distribute the Exploring Africa handout (enclosed).

Have the students write a multi-paragraph paper using the criteria in the handout. Collect and grade the papers.

Materials:

Africa supplement map, National Geographic, February, 1980.

Goode's World Atlas, 17th edition (Rand McNally), pps. 218-231.

Outline map of Africa.

Students could spend one class period, perhaps several months in advance of this activity, writing letters requesting tourist information from the various countries and/or area along their route which will be used in completing their project/paper.

Filmstrip: "World Climate and Landscape Regions," United Learning, Huntsville, Texas (also available on video).

Evaluation:

1. Students can present their findings/information orally to the class.
2. Explain to the students that 1/2 of their grade will be based on the written paper and 1/2 of their grade will be based on the oral report.

Exploring Africa: Handout

1. Trace the route of your assigned journey on a blank outline map of Africa. Label the countries through which you will pass. Label all the physical features you would see if you traveled the same route as an explorer. Include mountains, rivers, plateaus, and other important landmarks.

2. Using various reference materials that were discussed in class, note the following items that you would encounter if you were to retrace the steps of these early explorers:

- a. What cities, countries, regions, etc. do you pass through?
- b. What landforms do you encounter or see?
- c. What climates, climatic changes, and vegetation will you encounter?
- d. How long is your trip (miles)? What mode of transportation will you use? How long do you propose it will take you to travel your route?
- e. What kinds of people will you meet? What kinds of tribes and languages will you encounter?
- f. What type of population characteristics are there along your route (rural/urban)?
- g. What kind of economies (jobs/resources) are there along your route?
- h. What types of cultural traditions will you expect to see?
- i. What kinds of supplies will you need to take?

3. Write a multi-paragraph paper describing your trip in Africa using the questions above to help you write the paper.

4. Attach your map to the report and turn both in on date due.

Supplemental Writing Activity

1. This activity is a writing activity which allows the student to request information about the various countries from an official source. (With a few modifications, this activity can be used to establish a pen-pal network. Pen-pals can be foreign students in ESL classes at different schools, colleges, or universities. A cooperating teacher or professor can provide the necessary link).

2. Objectives:

- a. The student will learn about the process of obtaining information from official sources.
- b. The student will establish a link with an unfamiliar country or culture.
- c. The student will recognize how poor, developing countries have few resources to devote to public relations materials.
- d. The student will learn to keep records based on a country's response.
- e. The student will draw conclusions based on data obtained from the various countries.

3. Classroom Procedures:

- a. Assign each student a writing partner. Several methods may be used to divide students into pairs. For example, students may count off, or students may draw slips of paper which have been color coded by the teacher.
- b. Ask the students to find their partners and move the desk so that partners are facing each other.
- c. Explain to the students that the task of the writing pairs is to compose a letter requesting information about a particular country or countries.
- d. In a hat, on slips of paper, place all the names of the countries which will be included in the project.
- e. Have a member of each writing pair select a name from the hat. As each writing team draws a country, have a member of the team write the name of the country on the Response Chart. (The Response Chart can be made from poster board. Blanks for the names of countries can be equivalent to the number of countries which will be drawn. Two columns labeled - Yes or No - can be placed on the chart).
- f. After all countries have been selected, direct the students' attention to the board where the proper form for a business letter is written.
- g. Ask the students to copy the form; then, compose a first draft of a letter requesting the following types of information: population, climate, cities, major landforms, rivers, major products, tourist facilities, etc.
- h. Have students write a second draft. When the second draft is completed, it should be given to another writing pair for proofing. (If necessary, the second and third drafts may be completed on the following day).
- i. After the second draft has been proofed and edited, one member of the writing pair may pick up an official school letterhead and envelope. (The teacher can obtain the stationery from the secretary in a main office).
- j. The final draft of the letter should be placed on the official school stationery and the envelope addressed. (If school stationery is used, postage should be supplied either by the school or the district. This part

of the project should probably be cleared by the appropriate administrator).

k. The completed letters should be paper-clipped to the addressed, UNSEALED, envelope and given to the teacher for a final reading.

l. After the teacher has read the letters, they may be returned to the writing pair. One member of the writing pair may place the letter in the envelope, seal the envelope, and place the completed product in a mail basket.

m. After all letters have been collected, the teacher may select one or two students to take the letters to the school's mail room for mailing.

n. Responses received should be given to the appropriate group for opening. A star can be placed on the response chart by the name of the responding country. Materials received should be filed for later use.

Materials:

a. Letterheads

b. Envelopes

c. Markers for color coding and/or making chart

d. Candy (optional)

e. Slips of paper for names of countries

f. Hat or box

g. Poster board for names of countries

h. Stars

Evaluation:

The completed letter will be checked for clarity of expression as well as content, organization, and mechanics. As countries respond, the writing pair who receive the material will share in a brief presentation what has been received. (A time limit of three to five minutes can be established). Writing pairs who do not receive a response will present the reasons they believe the country did not respond.

Sources:

Educator's Guide to Free Social Studies Materials, Educator's Progress Services, Inc., Randolph, Wisconsin 53956. Cost: Approximately \$15.00. Your library may have one available.



African Treasure Hunt

Linda Frederickson
Julie Goos
Charles Shaw
Bonnie Johnson

Description:

This learning game challenges an explorer to solve a series of geographic problems. Correct solutions lead the explorer to the next step. When the explorer has finished, he/she will have solved each problem and arrived at the correct conclusion/destination. The activity is designed for one class period, and can be used by a substitute teacher with no prior preparation.

Learning Outcomes:

When the students finish this activity, they will be able to:

1. locate and describe major landforms and physical features of Africa.
2. describe the physical setting of selected regions of Africa.
3. locate major natural resources of Africa.
4. locate the major regions and nations of Africa.

Essential Elements; World Geography Studies, Grades 9-12:

2A locate and describe major landforms and features of the Earth

2C describe the physical setting of a selected area

2D locate the major natural resources of the world

2E locate the major nations and regions of the world

Fundamental Geographic Themes:

Location

Place

Regions

Related Learning Opportunities:

Math

Reading

Grammar--sentence structures

Classroom Procedures:

1. Make a classroom set of "African Treasure Hunt" (see Appendix).
2. Hand out African Treasure Hunt papers, a classroom set of atlases, and answer sheets.
3. Read the directions to students at the beginning of "African Treasure Hunt." Instruct students on how to derive information from the clues. Use examples.
Example: "The number of letters in the name of the major desert located in north Africa is your next clue. The answer is Sahara which has six letters. Go to question #6. From here on, be guided by your answers."

4. Students turn in "African Treasure Hunt" and answer sheet when the exercise is completed. Classroom atlases are also returned.

Materials:

1. Classroom set of African Treasure Hunt handouts.
2. Answer sheets for your students (see Appendix).
3. Classroom Atlas - suggested - Rand McNally, catalogue #528-17720-6, price \$2.94 each.
4. World Geography Textbook
5. National Geographic Atlas of the World - optional - price \$49.95.

Evaluation:

Evaluation will be done by grading the student's written responses, looking for correct order, spelling, and complete sentences.

Appendix:

Sample of African Treasure Hunt
Answer worksheet
Answer key and map

Creation of a treasure hunt is simple and not overly time consuming. This is a great way to motivate students to answering every question by making a great game out of learning about places. This approach can be easily applied to other topics and regions. The game may also be made more exciting by adding hazards that students will face if they incorrectly answer a question.

"Hazard" Examples:

1. If the Nile River flows north, go to #4. If not, go to #2.
2. Congratulations! You just slipped on a rock and fell over Victoria Falls.
3. If the equator goes through Zaire, go to #5. If not, go to #7.
4. If Angola is on the Pacific Ocean, go to #8. If not, go to #10.

African Treasure Hunt

In this game, the explorer moves from one problem to another in the proper sequence. The answer to each problem, if correct, will be a guide to the next problem. When you have finished, you should have solved every problem and arrived at the correct conclusion.

Starting Question:

The number of letters in the large African river which flows north is the number of your next problem.

1. You remembered to subtract! The number of letters of the country consisting of two main islands located at 1 degree N, 8 degrees E, is the number of your next problem. Be sure to use the full name of the country.
2. Wow! You really got the idea of how this works. Keep on! The number of letters of the river which forms the boundary between Mauritania and Senegal is your next clue.
3. Great! Djibouti is on the Gulf of Aden. The number of letters of the country of which Malabo is the capital is the number of your next step.
4. Great! You have the right idea. The number of letters of the ocean which Angola borders is your next problem.
5. Well done! The number of letters in the largest island near Africa is your clue.
6. Excellent! You did not include Lake Victoria! The number of letters of the highest waterfall in the world (two words) is your next step.
7. You're doing fine! Keep going! The number of letters in Africa's highest mountain peak is your next clue.
8. Good! You did look on the western border! The number of major lakes in the Great Rift System is your next clue.
9. You did great! The number of African countries which border on the Red Sea is the next problem.
10. That one is hard to miss! You did great! The next step is the number of countries which are located north of the Equator and border on the Atlantic Ocean (exclude island nations, but include Gabon).
11. It's in Tanzania, not Kenya. Keep going! The number of letters in the desert located in Namibia is the next clue.
12. Great! Many European names are being changed to the African names. The next clue is the number of letters in the region of the Republic of South Africa where diamonds were found.

13. You're doing great! Keep going! The number of major rivers which merge at Khartoum to make up the main body of the Nile River is your clue.

14. Great! You did remember to count both words. Add the number of letters found in the capitals of Algeria, Libya, and Egypt to find your next clue.

15. That took a little research, but you did well! The number of thousand feet of Mt. Kilimanjaro plus the number of major lakes in Tanzania that are not a part of the Great Rift System is the next problem.

16. You're doing great! Go for it! Your next step is the number of letters in a centrally located province in the Republic of South Africa.

17. Gosh! That was difficult to count, but you did it! The number of letters in the European name for Kinshasa is your clue.

18. You counted correctly! Excellent! The number of letters of the major land features located in north west Africa give you the next clue (two words).

19. You, have done very well! Keep going! Your clue is the number of degrees latitude of the equator.

20. Super! You remembered to use just the right numbers! The number of letters in the name of this continent minus the number of letters in the largest most southern lake in the Great Rift System is your next problem.

African Treasure Hunt

Name _____ Date & Period _____

Directions: After reading a problem (in the sequence prescribed), write the correct statement of the problem in a complete sentence. Then write the correct number of your next choice in the space provided.

Statement	Number
1.	1. _____
2.	2. _____
3.	3. _____
4.	4. _____
5.	5. _____
6.	6. _____
7.	7. _____
8.	8. _____
9.	9. _____
10.	10. _____
11.	11. _____
12.	12. _____
13.	13. _____
14.	14. _____
15.	15. _____
16.	16. _____
17.	17. _____
18.	18. _____
19.	19. _____
20.	20. _____

Congratulations!!
You have completed a successful Treasure Hunt!

Answer Sheet:

Starting question -- Nile -- four

1. Sao Tome and Principe -- eighteen
2. Senegal -- seven
3. Equatorial Guinea -- sixteen
4. Atlantic -- eight
5. Madagascar -- ten
6. Victoria Falls -- thirteen
7. Kilimanjaro-- eleven
8. Rudolph, Albert, Edward, Kivu, Tanganyika, Nyasa-- six
9. Egypt, Sudan, Ethiopia -- three
10. Morocco, Western Sahara, Mauritania, Senegal, Gambia, Guinea-Bissau, Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Benin, Nigeria, Cameroon, Equatorial Guinea, Gabon -- seventeen
11. Namib -- five
12. Kimberley -- nine
13. White Nile and Blue Nile -- two
14. Algiers, Tripoli, Cairo -- nineteen
15. 19,340 feet, Lake Victoria (19 + 1) -- twenty
16. Orange Free State -- fifteen
17. Leopoldville -- twelve
18. Atlas Mountains -- fourteen
- 19 -- 0 degrees -- zero
20. Africa -- Nyasa (6--5) -- one

The correct treasure hunt route is as follows:

Start to 4

4 to 8

8 to 6

6 to 13

13 to 2

2 to 7

7 to 11

11 to 5

5 to 10

10 to 17

17 to 12

12 to 9

9 to 3

3 to 16

16 to 15

15 to 20

20 to 1

1 to 18

18 to 14

14 to 19

Africa in Jeopardy

Debi Elliott
Bill Frederickson
Fredrica Kinnard

Description:

The television game of Jeopardy! will be simulated to review facts and information concerning the continent of Africa prior to a major exam concluding the unit.

Learning Outcomes:

The students will be provided with an opportunity to recall geographic facts and information about the continent of Africa.

Essential Elements: World Geography Studies, Grades 9-12:

- 1B explain geographical terminology
- 2A locate and describe major landforms and features of the Earth
- 2C describe the physical setting of a selected area
- 2E locate the major nations and regions of the world
- 3C describe major economic activities of a region

Fundamental Geographic Themes:

- Location
- Place
- Relationship Within Places
- Movement
- Regions

Related Learning Opportunities:

- History
- Sociology
- Physical Science

Classroom Procedures:

1. Teacher will divide the class into teams with four members and a captain. (See attached diagram of "Physical Classroom Setting").
2. Categories and point values may be either written on the chalkboard or placed on overhead transparency. As questions are correctly answered points can be crossed out. When all questions (five) for a specific category are correctly answered, this category is "closed.". (See "Categories and Point Values," attached).
3. Rules of the game: See "Rules/Procedures of Game."

Materials:

- Overhead Projector
- Timer
- Flash cards
- Questions for Categories. (About ten questions per category).

Evaluation:

Since this activity is not designed for a grade, but is a review, teacher should offer some "reward" to help foster competition and team spirit.

Rules and Procedures of Game

1. Teacher acts as moderator (asks questions). Teacher determines accuracy of student responses.
2. Select timekeeper and scorekeeper. Timekeeper is to let teacher know when the three minute time period expires and when Jeopardy! and Double Jeopardy! time phases expire (use "egg" timer or some other timing device). Scorekeeper keeps team points and tallies each team score at end of each phase.
3. Determine which of the five teams begins first; that team selects a category and teacher asks questions from that category. The first players for each team are the only people eligible to answer questions and can only converse with team captain. (The team captain can assist the player in determining the correct answer). The team that raises their "indicator" (see materials) first within the time limit (five to ten seconds) will be allowed to answer.
4. If answer is correct, points are awarded and the same team chooses the next category and point value. If the answer is incorrect, points are deducted. Once a question has been asked, any team can respond/answer if they have "indicated" first. If no team responds, the team with the last correct response chooses the next category and point value.
5. At the end of three minutes, teams rotate players (first player goes to end of seating row and second player moves up). This allows all team members to get a chance to "play" the game.
6. Time limits for Jeopardy! phase is fifteen minutes (or teacher discretion). Teacher must post a different set of point values for Double Jeopardy!. The teacher may wish to change categories if desired.
7. At the end of Double Jeopardy! phase, teacher gives Final Jeopardy! category and teams decide among themselves "how much" to wager. Teacher asks Final Jeopardy! question; teams discuss answer among their members, and when time is up the team captain writes the answer on a sheet of paper and hands it to the teacher. Team with correct answer and most points at end of game is winner.

General Information Sheet

1. It is assumed that the teacher will have completed instruction and student discussion on the unit of Africa before playing game of Jeopardy!.
2. The teacher may want to select additional categories (i.e. vocabulary and terms, weather, climate, and others).
3. The teacher may want to have the students write at least one question, with answers, for each category and turn them in. These questions may have to be edited before using.
4. The teacher may want to select the teams a day or two in advance and give them the major categories to concentrate on in their review/preparation for the game.
5. The teacher may want to recommend to the students that they divide the categories between them. In this way, when a team member is representing his/her team, they could select the category that they may be most familiar with.
6. The teacher may want to extend the game for two class periods. This might necessitate that instead of ten questions per category they be increased to twenty questions.

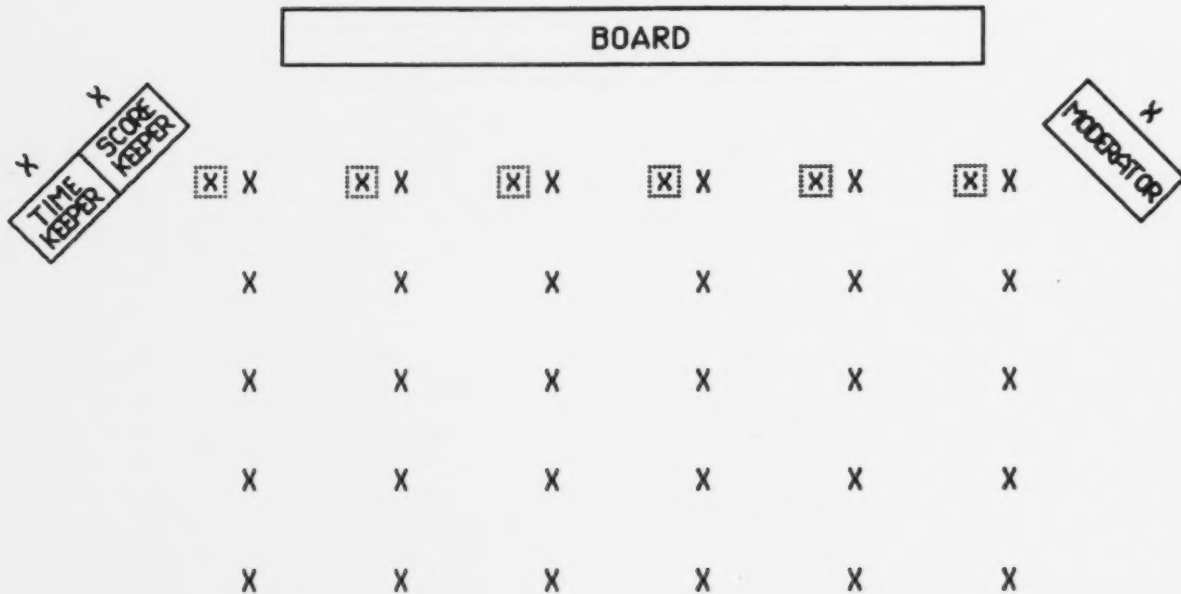
Sample Category Questions

1. What is the major landform of Africa? (Plateau)
2. Where would you find most of Africa's plains? (Coastal regions)
3. What potential resource do Africa's rivers create? (Hydroelectric power)
4. What kind/type of soil would you find in the highland region? (Volcanic)
5. What mountain range is located in Northern Africa? (Atlas Mts.)
6. What is unique about Mount Kilimanjaro? (single peak; highest mountain in Africa; is not part of a mountain range)
7. How was the Great Rift Valley formed?" (Fault or fracture in the Earth's crust).
8. Lake Victoria is or is not a part of the Great Rift Valley? (Is not)
9. What is so unique about the Nile River? (Longest river in the world; not much tributary system; originates in humid region and flows through arid region)
10. Name the desert region found in North Africa. (Sahara)
11. Name one of the two countries in African that were independent before 1900. (Ethiopia/Liberia)
12. In what year did the majority of the African countries gain their independence? (1960)
13. Which region of Africa would you most likely find nomadic herding? (North Africa or Sahara)
14. What types of governments would you find in most African countries today? (One-party/dictatorships)
15. In which African country would you find the practice of Apartheid? (South Africa)

FINAL JEOPARDY!:

Identify three of the six lakes that are located in the Great East African Rift Valley. (Rudolph, Albert, Edward, Kivu, Tanganyika and Nyasa).

PHYSICAL CLASSROOM SETTING



LEGEND: ☐ Team Captain
 X Team Member

CATEGORIES AND POINT VALUES

JEOPARDY:

LOCATION/ PLACE	PHYSICAL FEATURES	REGIONS	STATES	PEOPLE/ CULTURE	HISTORY	ECONOMY/ RESOURCES
10	10	10	10	10	10	10
20	20	20	20	20	20	20
30	30	30	30	30	30	30
40	40	40	40	40	40	40
50	50	50	50	50	50	50

DOUBLE JEOPARDY:

20	20	20	20	20	20	20
40	40	40	40	40	40	40
60	60	60	60	60	60	60
80	80	80	80	80	80	80
100	100	100	100	100	100	100

FINAL JEOPARDY: A team may risk all or as few of their total accumulated points as they desire.

World Rally

Mary Ann Fine
Janice Ideus
David Taylor

Description:

This activity is designed to conclude a unit on maps and map reading for a tenth grade World Geography class. This is a group activity in a game format with a competitive atmosphere. The title, "World Rally," refers to the requirements which must be correctly completed before each team is allowed to advance from checkpoint to checkpoint.

Learning Outcomes:

1. The students will be able to locate places on a map according to latitude and longitude.
2. The students will be able to draw conclusions and comparisons using data from maps and Goode's World Atlas.
3. The students will be able to identify and locate names of important geographical terms, landforms, water bodies, political boundaries, regions, and other features on a map.

Essential Elements; World Geography Studies, Grades 9-12:

- 1A compare physical and cultural geography
- 1B explain geographical terminology
- 2A locate and describe major landforms and features of the Earth
- 2E locate the major nations and regions of the world

Fundamental Geographic Themes:

Location
Place

Related Learning Opportunities:

Students playing World Rally will use simple mathematics in locating specific places on the maps. Critical thinking skills will be used in comparing and contrasting, and in problem solving.

Classroom Procedures:

1. The teacher will divide the class into approximately four or five groups before explaining the activity. Each group will have access to a Goode's World Atlas, and a large world map.
2. Rally sheets will be distributed to each group.
3. The following World Rally rules will be explained to the class:

"You (the students) will be taking a trip around the world in the form of a rally race. The object is to be the first group to complete the trip by having answered all the questions en route. Checkpoints along the way are to be verified by the teacher before moving on to the next checkpoint.

Teamwork, speed, and accuracy are essential to being competitive in, or winning, the rally."

"Each checkpoint is a set of latitude and longitude coordinates that locate a major city. You must provide the country and the continent for the location of each city checkpoint. Between the checkpoints, several questions dealing with the trip from one city to the next must be answered. You must correctly answer all the questions and receive verification from the rally judge (teacher) in order to move on to the next checkpoint. The first team to receive verification on all checkpoints is declared the winner."

Materials:

1. World atlas for each team
2. Large world map for each team
3. World Rally sheet for each team
4. Verification stamp

Evaluation:

1. Students will be evaluated on observation of performance.
2. Each team will be evaluated on the completion of rally sheets.

WORLD RALLY SHEET

Group Name _____

Students: _____

Checkpoint 1. Start at: 29°N 98°W and go to: 19°N 99°W

- _____ A. What international boundary did you cross?
- _____ B. What state are you in?
- _____ C. What political significance does this city have?
- _____ D. What mountain range lies to the west?

Checkpoint 2. 12°N 86°W

- _____ A. Name the three Mexican states you crossed.
- _____ A'.
- _____ A".
- _____ B. What is the name of the large inland lake in this country?
- _____ C. What body of water is located to the west of this country?

Checkpoint 3. 18°N 77°W

- _____ A. What body of water did you cross?
- _____ B. What type of land area is this?
- _____ C. What is the closest country?
- _____ D. What is the name of the chain this country is part of?

Checkpoint 4. 22°S 42°W

- _____ A. What was the largest river you crossed?
- _____ B. What well-known parallel is 1 1/2 degrees south of checkpoint 4?
- _____ C. What season will it be if you are here in July?

Checkpoint 5. 33°S 18°E

- _____ A. What ocean did you cross?
- _____ B. Near what navigational point is this city located?
- _____ C. Name the port city located at about the same latitude, but on the east coast.
- _____ D. What is the desert 10 degrees north of this city?

Checkpoint 6. 33°N 35°E

- _____ A. What sea is located 2 degrees to the south?
- _____ B. What international canal did you cross or pass near?
- _____ C. What country is located adjacent and directly south?

Checkpoint 7. 41°N 12°E

- _____ A. Name the four countries bordering this country.
- _____ B. What four bodies of water border this country?
- _____ C. What island nation is located west of this country?
- _____ D. Name the mountains that border this country to the north.

Checkpoint 8. 51°N 0° E or W

- _____ A. What direction did you fly to get here?
- _____ B. How many degrees of latitude did you cross to get here?
- _____ C. What strait did you cross to get here?

Checkpoint 9. 55°N 37°E

- _____ A. What political similarity does this city share with London?
- _____ B. What aquatic similarity does this city share with London?
- _____ C. Name the mountain chain to the east that separates Asia and Europe.
- _____ D. What is the main river in the western part of this country?

Checkpoint 10. 37°N 127°E

- _____ A. This city is located on what type of landform?
- _____ B. What country, located east of here, is economically competitive with the U. S.?
- _____ C. The most populous country in the world is to the west. What is it?
- _____ D. What two seas in this region are named after the country described in C?

Checkpoint 11. 21°N 105°E

- _____ A. What three countries border this country?
- _____ B. What is the name of the peninsula this country is part of?
- _____ C. What gulf is located to the east?
- _____ D. Within 2 degrees either way, how many degrees of latitude does this country extend?

Checkpoint 12. 34°S 151°E

- _____ A. What is the mountain range to the west?
- _____ B. What island is directly to the south?
- _____ C. What ocean is to the west?

Checkpoint 13. 21°N 158°W

- _____ A. If you left checkpoint 12 on Tuesday, what day did you arrive here?
- _____ B. Name two national parks nearby.
- _____ C. Name two nearby volcanos.

Checkpoint 14. 37°N 122°W

- _____ A. What ocean did you cross?
- _____ B. How many time zones did you cross?
- _____ C. What large city is located directly east?

Checkpoint 15. 29°N 98°W

- _____ A. What major mountain range did you cross?
- _____ B. What major exotic river did you cross?
- _____ C. If you left checkpoint 14 at 4 a.m., and it took 2 1/2 hours to fly to checkpoint 15, what time did you arrive?

WORLD RALLY ANSWER SHEET

1. San Antonio, U.S.A., North America
Mexico City, Mexico, North America
A. U.S. / Mexico border
B. Distrito Federal
C. Capital
D. Sierra Madre
2. Managua, Nicaragua, Central America
A. Morelos, Puebla, Oaxaca
B. Lago de Nicaragua
C. Pacific Ocean
3. Montego Bay, Jamaica, North America
A. Caribbean Sea
B. Island Nation
C. Cuba
D. West Indies
4. Rio De Janeiro, Brazil, South America
A. Amazon
B. Tropic of Capricorn
C. Winter
5. Cape Town, South Africa, Africa
A. Atlantic
B. Cape of Good Hope
C. Port Elizabeth
D. Kalahari
6. Beirut, Lebanon, Asia
A. Dead Sea
B. Suez
C. Israel
7. Rome, Italy, Europe
A. France, Switzerland, Austria, Yugoslavia
B. Adriatic Sea, Ionian Sea, Tyrrhenian Sea, Ligurian Sea
C. Sardinia
D. Alps
8. London, England, Europe
A. Northwest
B. 10 degrees
C. Dover
9. Moscow, Russia, Europe
A. Both are capitals
B. Both have rivers in the city
C. Urals
D. Volga
10. Seoul, South Korea, Asia
A. Peninsula
B. Japan
C. China
D. East China Sea, South China Sea

11. Hanoi, Vietnam, Asia
 - A. China, Laos, Kampuchea
 - B. Indochina
 - C. Tonkin
 - D. 16 degrees
12. Sydney, Australia, Australia
 - A. Great Dividing Range
 - B. Tasmania
 - C. Indian
13. Honolulu, USA
 - A. Monday
 - B. Haleakala Nat. Park Hawaii Volcanos Nat. Park
 - C. Mauna Loa, Mauna Kea
14. San Francisco, USA, North America
 - A. Pacific
 - B. One
 - C. Oakland
15. San Antonio, USA, North America
 - A. Rockies
 - B. Colorado
 - C. 8:30 a.m.

Red Squares

Mary Ann Fine
Janice Ideus
David Taylor

Description:

This is a culminating activity for a unit on the Soviet Union, designed for a 10th grade World Geography class. It is a group activity with a game format and a competitive atmosphere. The title **Red Squares** refers to the squares representing each letter in a given phrase. This game is designed to resemble the television game "Wheel of Fortune." Students must answer a question in order to guess which letters are in the phrase. The degree of difficulty of the question is determined by spinning a wheel.

Learning Outcomes:

The student will be able to recall facts pertaining to the physical geography, ethnicity, economy, and government of the USSR.

Essential Elements; World Geography Studies, Grades 9-12:

- 1A compare physical and cultural geography
- 2C describe the physical setting of a selected area
- 3A understand criteria for determining regions
- 3D determine the economic, social, and cultural interchange among regions and countries

Fundamental Geographic Themes:

Place
Relationships within Places
Movement
Regions

Related Learning Opportunities:

History
Economics
Demography

Classroom Procedures:

Select a phrase or name and draw red squares on the board equal to the number of letters in the phrase. The class is divided into four to five teams and a spokesman is appointed to each team. A brief explanation of the game is given, the rules are read, and the game proceeds. The object is for a team to solve a phrase written on the board. When a team does this, the number of points accumulated are won and become bonus points on the next test or whatever the teacher deems appropriate.

The game is started by Team A spinning the dial. The numbers one, two, and three denote the difficulty level of the question they are asked. As a team, if they can respond with the correct answer, they receive that number of points. A correct answer then allows them to make a guess on the Red Squares. Identification of the squares is begun by asking for

letters. Consonants are free and vowels cost three points. If a correct letter is selected, the teacher fills in all of those letters in the proper squares. The group can then make a guess at solving the puzzle. A correct attempt wins the game. An incorrect attempt allows them another spin.

An incorrect response to a question ends Team A's turn. An incorrect guess at a letter also ends the turn. The question then is optioned to Team B. If Team B wants the question, they can answer it for the points offered. If Team B would rather spin, the question is first offered to the other teams playing. A correct answer would win only points.

Also on the dial are the areas designated lose a turn and free letter. These options are self-explanatory. The game continues and points are accumulated until one team is able to solve the puzzle.

Materials:

1. Colored chalk (red)
2. Chalkboard
3. Wheel with numbers and other spaces
4. List of questions and answers

Evaluation:

Accumulation of points and observation.

RED SQUARES

Possible Puzzle Words:

Bolshoi Ballet	Communist Party
Trans-Siberian Railroad	Peter the Great
Mother Russia	Vladimir Lenin
Largest Country in the World	Sputnik

Level One Questions:

What is the largest Republic of the USSR? Russia
Name the ocean that borders the USSR on the North. Arctic Ocean
The job of physical labor generally reserved for women and retired persons. Street Sweeping
What river is called "Mother?" Volga
Name the main method of birth control used in the USSR. Abortion
How many Republics are there in the USSR? 15
Name the deepest lake in the world. Baikal
How many ethnic groups does the USSR have? over 100
The major warm water port of USSR is? Vladivostok
What is the major decision making body of the Soviet Union? Politburo
What separates European Russia from Asian-Russia? Ural Mtns.
Name the percentage of people who belong to the Communist Party. 10%
Who is buried in the tomb located in Red Square? Lenin
Russians make up what percentage of the population of the Soviet Union?
50%

Level Two Questions:

Name the major airline that flies within the borders of the USSR. Aeroflot

Name the major park in Moscow. Gorky

St. Petersburg is now known as? Leningrad

How many time zones are there in the USSR? Eleven

What alphabet does the Russian language use? Cyrillic

What two major problems prevent ships from using the rivers to any significant degree in Russia? They flow toward the Arctic Ocean (South to North) and they are frozen most of the year.

What major water transportation problem does Russia face? Lack of warm water ports.

What does the Soviet Union use to compensate for the rivers that freeze? Ice breakers.

What major technological undertaking is called the "Project of the Century"? BAM

There are two mineral resources in N.E. Siberia that are as yet untapped.

What are the two resources? Gold and Oil

Level Three Questions:

Name the letters of the Russian alphabet that denote the Communist Party. CPSU

Define the term "function of distance" as related to Russia. The mere size of Russia creates problems in communication, transportation, etc.

What political privilege do the 15 Soviet Republics have that the states of the United States do not have? secession

Russian students who receive financial scholarships for college must repay the government by? Serving three years in Siberia

Why are the resources of Siberia being exported rather than used within the borders of the USSR? function of distance

Define Buffer Zones and explain how the Soviet Union uses them. 1. Areas of countries that lie along the Russian boundary. 2. To protect the mother country.

Based on our discussions, what is the definition of ethnic? A collection of people with a sense of loyalty to one group based on one or more commonalities.

Which ethnic (religious) group has made significant contributions to the Soviet arts and sciences? The Jews

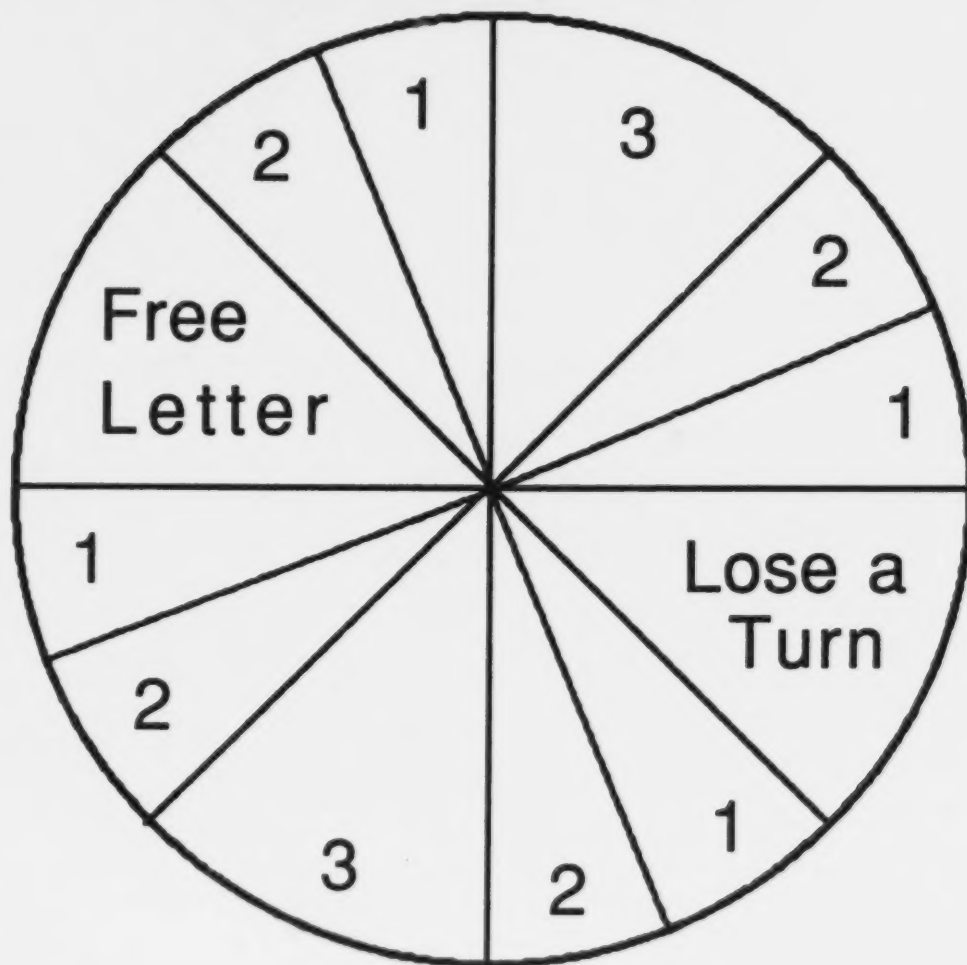
Why is the Soviet economy a paradox? A major superpower of the world on one hand and very backward in providing consumer goods for its people.

What is the dominant population of Kazakh? Russian

Name the 3 criteria required to meet Union Republic Status. 1. A dominant ethnic group. 2. A population of one million. 3. An external border.

The USSR is self-sufficient in all major resources except? Bauxite

RED SQUARES



127

Climatic Pursuit

Cam White
Jake Ritzen
Joy Scharf
Frederica Kinnard

Description:

Students work in groups to prepare creative presentations that will identify and analyze climate zones on each of the continents. Students then participate in a climate game to review world climate zones. Time period: two to three days.

Learning Outcomes:

Students will be able to:

1. identify climate zones on the continents of the world.
2. identify characteristics of climate zones.
3. analyze the importance of climate to world regions.

Essential Elements; World Geography Studies, Grades 9-12:

- 1A compare physical and cultural geography
- 1B explain geographical terminology
- 2B describe the physical forces that alter the features of the Earth's crust
- 2D locate the major natural resources of the world
- 3B analyze the impact of environment on ways of life in a region
- 3C describe major economic activities of a region
- 3E explain the causes of population patterns, densities, and movements
- 3F analyze forces that are causing changes in the landscapes of regions and countries

Fundamental Geographic Themes:

Location
Place
Relationships within Places
Regions

Related Learning Opportunities:

Earth Science
Art
Language Skills

Classroom Procedures:

1. This activity should be the culminating lesson for a one to two week unit on world climate or climate regions. To focus the students' attention on the activity begin by reviewing definitions of climate and weather. Discuss general ways that climate is important to the world and its regions. The teacher should solicit responses from students.
2. Provide a general handout of climate regions to students. This should be review for the students after completing the unit on world climates.

3. Introduce the project: students will be divided into groups of four or five. Each group will then be assigned one of the continents (excluding Antarctica, which will be the example explained by the teacher).

4. The students are to prepare creative presentations identifying the climate zones of their continent. Each group should describe the climate zones, state two ways climate zones affect regions, and state reasons why they are important (for example: vegetation, economics, politics, impact on life, etc.) The students should use art materials in the presentation (pictures, posters, and/or graphs).

5. The teacher will present Antarctica as an example (see Appendix). To add interest, the teacher might want to present Antarctica information like a TV weather broadcast to show students an example of a creative presentation.

6. Students should work in groups for one or two days. The Groups will then present their projects to the class. The teacher should discuss each continent with the class following each presentation. Have students refer to climate maps in their text or in an atlas. The students may also draw climate regions for each continent on a blank world map.

7. The teacher will introduce climate regions review game following the presentations (see Appendix for sample questions and categories). The rules for "Climatic Pursuit" follow:

- students will remain in groups from above project.
- use basic 'Trivial Pursuit' rules, game board, and pieces.
- students elect one speaker for the group, and can discuss question quietly within the group.
- maximum of 3 rolls per group per turn (if answer questions correctly)
- teacher may allow groups to use general handout of climate regions.
- categories: **North America: brown, Asia: blue, Europe: yellow, Australia: pink, Africa: orange, South America: green.**
- teacher asks questions and play continues for review.

Materials:

World Geography textbook

Goode's World Atlas

Art materials

"Trivial Pursuit" game pieces and board

Geography: Regions and Concepts, by de Blij and Muller

Evaluation:

Climate project, observation, review game. These activities are graded subjectively. The teacher may wish to list requirements for certain grades prior to the activity.

Appendix:

Antarctica example

Sample game questions

Antarctica Example

1. Teacher should use an opaque projector to show maps of Antarctica from Geography: Regions and Concepts, pp. 532-533 by de Blij and Muller (included) and Goode's World Atlas, p. 232.
2. Discuss national claims to Antarctica and present information from pp. 532-533 and map from atlas.
3. Discuss types of climates found (ice-cap and tundra), with little or no vegetation. Discuss importance of Antarctica. Example: protein from the ocean, fuels, minerals.
4. See procedures for suggestions for the completion of the projects.

Sample Game Questions

Africa:

1. Give two characteristics of the climate in the Sahara. hot, dry.
2. Why is the tropical rain forest important to Africa? oxygen, animal and plant life, water sources.
3. List two countries where the Mediterranean climate can be found. South Africa, Morocco, Algeria, Tunisia, Libya.
4. What are the two types of steppes? tropical, mid- latitude.
5. Where would the coldest climate of Africa be found? in the mountains.

South America:

1. What part of South America is most like the Sahara? parts of Chile and Argentina.
2. List two types of climates found in Brazil. Wet Equatorial, Wet and Dry Tropical, Moist Sub-Tropical, Tropical Steppe.
3. Why would the Mediterranean and Marine climates be important as? water sources? trade, power.
4. Which parts of South America have a climate like Central Texas? parts of Argentina and Brazil.
5. List two characteristics of the wet and dry tropical climate: warm and wet in summer, dry in winter.

North America:

1. I have warm summers, mild winters, and plenty of sunshine all during the year. What am I? Where am I located? Mediterranean, California.
2. I have very cold, dry winters, low annual rainfall, and warm summer days. What am I? Where am I located? Subarctic, Alaska and Canada.
3. My summers are hot or warm with convective thundershowers. Winters are cool with occasional freezes. What am I? Where am I located? Moist Subtropical, Southeastern U.S.
4. I have hot and dry summers. My winters are cold or cool and dry. Most precipitation is in winter. What am I? Where am I located? Midlatitude Steppe, Plains.
5. I have extremely hot, dry, and long summers. My winters are warm and dry. My rainfall is scarce and unpredictable. What am I? Where am I located? Tropical (Subtropical) Desert, Southwestern U.S.

Asia:

1. I have a large body of warm water to the South and East. It is humid, hot, and wet all year. What am I? Where am I located? Tropical Rain Forest, Southeast Asian Islands.
2. My winters are very cold and dry. I have low annual rainfall. Summer days are warm. What am I? Where am I located? Subarctic, Siberia.
3. My winter is very cold and dry. My summer is cool but short. I have no trees. What am I? Where am I located? Tundra, USSR.
4. My warm or hot summer has convective thundershowers. Winters are cool with occasional freezes. What am I? Where am I located? Moist Subtropical, Southeastern China.
5. I have warm or hot summers with thundershowers. Winters are cold with snow. Summer days are warm. What am I? Where am I located?
Moist Continental, Eastern USSR.

Comparing Climates

Mary Black
Gary Deane
Genelle Parra
Brenda Forshage

Description:

Climate, like landforms, can influence the activities of people. In South America, many different climate types are found, ranging from those with both extreme heat and precipitation, to near polar types in the high mountains. Large sections of South America enjoy moderate climates. An understanding of the climates of South America is fundamental to a student's inquiry into other characteristics of this continent.

This activity gives middle school students (sixth grade and up) an opportunity to compare rainfall and temperatures with the location (longitude and latitude) of several cities in South America. They will complete rainfall and temperature graphs, compute averages (annual temperature, range of temperature and annual precipitation). Finally, they will compare these climate types with the climate of their home town. The activity is designed for two class periods.

Learning Outcomes:

After completing this activity, students will be able to:

1. identify the different climates found in South America.
2. locate each of the climate types in South America.
3. use data to construct climate graphs.
4. Interpret information and data from maps, charts, and graphs.
5. show how people adapt to their climate.
6. show how climate may affect the way of life of the people.

Essential Elements; Social Studies, Grade Six:

5D locate and describe landforms and climates of various regions

5E describe how the geographic regions of the world are similar and different

Fundamental Geographic Themes:

Location

Place (physical characteristics)

Regions

Related Learning Opportunities:

Math: Averaging annual temperatures and precipitation, computing range of temperatures.

Science: Weather concepts such as temperature, precipitation, climate.

Social Studies Skills: Using and interpreting data and graphs.

Classroom Procedures:

1. Distribute the resource sheet "Comparing Climates." Reproduce enough copies of the climate graphs so that each student has two or three sheets.

2. Briefly review these vocabulary words:

Climate	Water vapor	Arid
Precipitation	Convection	Moderate
Extreme	Rainforest	Seasonal
Condensation	Tropical	Semiarid

3. Use an overhead transparency of the graph to explain that the numbers on the left are degrees of temperature and the numbers on the right side are inches of precipitation. Explain that when students make their charts, they will use a red pencil to show temperature and a blue pencil to show bars for monthly rainfall.

4. When they have completed the graphs, have the students use a world atlas and use the following questions for a discussion of the kinds of climate found in South America:

- At what latitude is each city? How does a change in latitude appear to affect the climate of an area?
- What are the names of the climate types in the exercise?
- What kinds of climate does the atlas indicate for each city?
- Which graph seems to show best that you are south of the equator?
- Which climate would you call moderate? What did you use to make your decision?
- Which climate appears to receive its rainfall from wet offshore ocean winds?
- How do the ocean currents help explain the desert-like climate of Antofagasta, Chile?
- How do you explain the drier months of July through November in Manaus, Brazil?
- How does the movement of the direct rays of the sun explain the differences in rainfall and temperature in Valdivia, Chile and Lima, Peru?

5. Use the data on the graphs to consider these questions concerning energy level:

- Which climate would you like best as a place to live? Why?
- What information did you use to make your decision?
- What special problems of clothing and housing are faced by people who live in this climate?
- How would your clothes, house, means of transportation, and choice of foods fit into tropical moist climates?
- Why is it that all of Brazil is not a tropical moist climate? How might this explain the re-location of the capital of Brazil?
- What special problems with vegetation do people encounter in tropical moist climates?

6. After students have completed the graph using three or four of the South American cities, you may wish to have them graph the temperature and rainfall of their own city or town. Secure information (the monthly average rainfall and temperatures) for your city using a Texas Almanac (often these figures are printed in the Weather Section of larger city newspapers). If you live in a small town or rural area, use the data given for the nearest city.

After they have graphed their local temperatures and rainfall, guide the students to compare differences and similarities with the other cities they have graphed. Ask them to explain why their city's graph is different from (or similar to) graphs for cities in South America.

Materials:

Student Activity: "Comparing Climates"

Climate Graphs (enough for each student to have two or three, blank forms are provided at the end of the activity)

World Atlas

Colored pencils (red and blue) for each student

Texas Almanac or other source for information about monthly rainfall and temperature for your city. The Texas Almanac is produced by The Dallas Morning News, 1988-89 Mike Kingston, editor, Texas Monthly Press, Austin, Texas.

Evaluation:

This activity may be evaluated in the following ways:

1. Through teacher observation as students work on their graphs.
2. The activity could be graded when finished on the basis of accuracy.
3. Through class discussion using the questions in the Procedures section.
4. Through a follow-up quiz.

Comparing Climates

Many people mistakenly believe that South America is always hot and wet. Actually, South America is so large that the climate could hardly be the same everywhere. Climate, unlike weather, does not change rapidly, so if we study the climate of places in South America, we can be pretty sure the same kinds of climate will exist in the same places each year. Don't forget that the seasons in the southern hemisphere are reversed from those of the northern hemisphere. Our winter is their summer, our spring is their fall, and visa-versa.

In this exercise you will use data to make several graphs of what the climate is like at four places in South America. After you find the same kind of data about the climate where you live, you will be asked questions about the climate and how you think it affects the way people live.

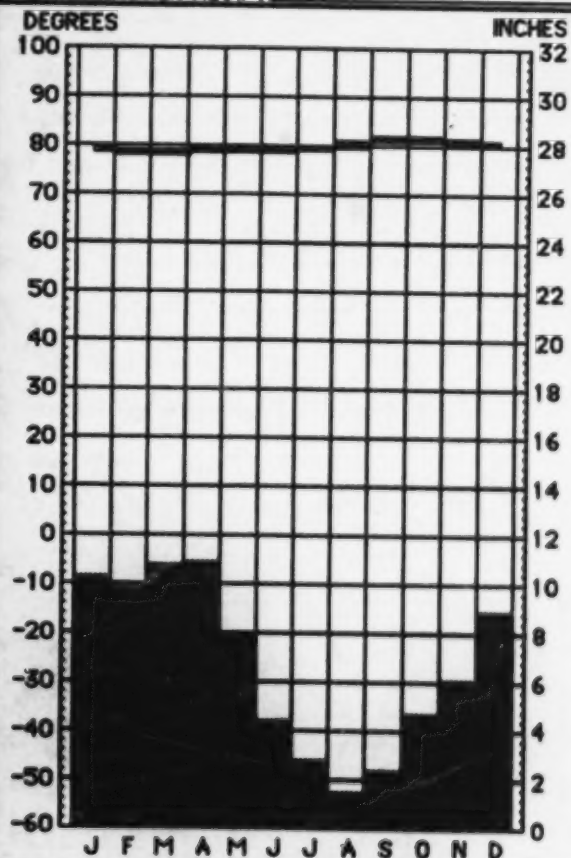
You will need four climate graphs for this activity. These graphs are supplied on the next page. Note that we have completed an example chart for Manaus, Brazil. Study the example graph, and when you are sure that you understand it, label and complete the remaining charts. Begin by making a bar and line graph for each of the first three places listed below.

PLACE	J	F	M	A	M	J	J	A	S	O	N	D	Year
Buenos Aires, Argentina	74 3.1	73 2.8	69 4.3	62 3.5	55 3.0	50 2.4	49 2.2	51 2.4	55 3.1	60 3.4	66 3.3	71 3.9	61° 37.4"
Sao Paulo, Brazil	69 8.8	69 7.5	68 5.8	65 2.5	60 2.5	59 2.0	58 1.1	59 2.0	61 3.0	64 4.4	65 5.4	68 7.1	64 52.1
Valdivia, Chile	62 2.7	62 2.8	59 5.5	54 9.5	50 13.9	47 18.1	47 15.6	47 13.0	49 8.4	53 5.0	56 5.0	59 4.0	54 103.5
Manaus, Brazil	79 10.3	78 9.8	78 10.8	79 10.9	79 7.9	79 4.4	80 2.7	81 1.5	82 2.4	82 4.7	81 6.1	80 8.9	80 78.7

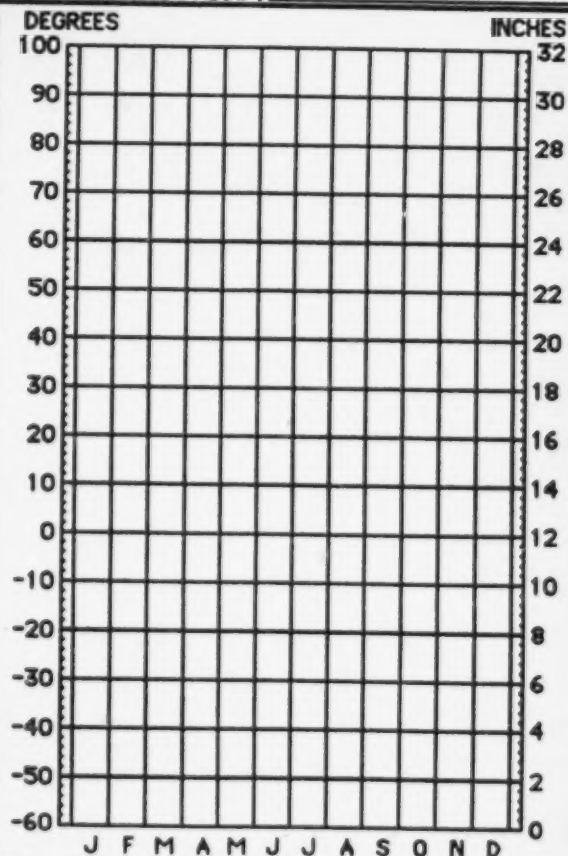
Now find the average monthly rainfall and temperature for where you live. Where would you expect to be able to find this kind of information? You now have all the information you need to make a few observations about the climate of South America. You could use the charts you have or prepare larger ones for presentation to the class. If you would like to make a report on the climate of South America, you might consider using filmstrips, maps, and these charts. Make sure you can answer the following questions before beginning your report:

1. What are the climates of South America like? Where does the idea of "always hot and always wet" fit best?
2. What names do geographers give to each type of climate? Where did you get your information?
3. Which South American climate is most like the one where you live? How did you decide that this place has a climate most like yours?
4. How does the latitude of this station compare with the latitude of where you live?
5. In which climate would hard physical work be the most difficult? Why?

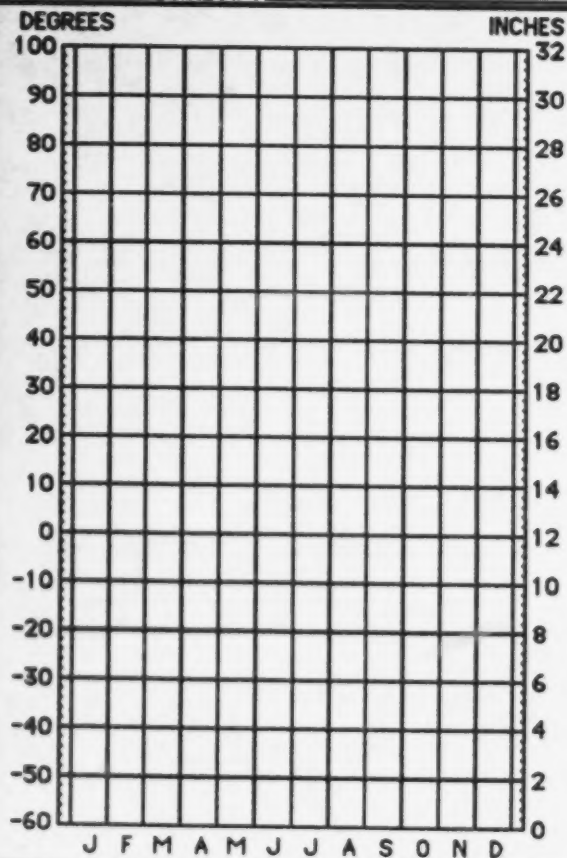
STATION Manaus CLIMATE TYPE _____
 LAT. _____ LONG. _____ MEAN ANNUAL TEMP. _____
 MEAN ANNUAL RANGE OF TEMP. _____
 MEAN ANNUAL PRECIP. _____



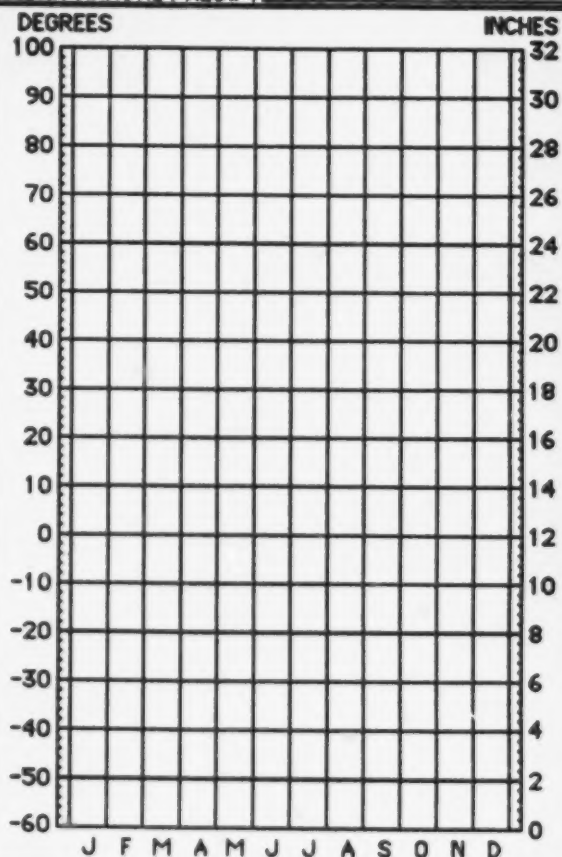
STATION _____ CLIMATE TYPE _____
 LAT. _____ LONG. _____ MEAN ANNUAL TEMP. _____
 MEAN ANNUAL RANGE OF TEMP. _____
 MEAN ANNUAL PRECIP. _____



STATION _____ CLIMATE TYPE _____
 LAT. _____ LONG. _____ MEAN ANNUAL TEMP. _____
 MEAN ANNUAL RANGE OF TEMP. _____
 MEAN ANNUAL PRECIP. _____



STATION _____ CLIMATE TYPE _____
 LAT. _____ LONG. _____ MEAN ANNUAL TEMP. _____
 MEAN ANNUAL RANGE OF TEMP. _____
 MEAN ANNUAL PRECIP. _____



The Equatorial Doldrums

Gary Deane
Mary S. Black
Brenda Forshage
Genelle Parra

Description:

This activity reviews the concept of latitude and latitudinal zones, including the equator, the tropics, the midlatitudes, and the poles. Globe skills are also introduced. The introductory activity is designed for sixth graders, but would work reasonably well for younger age groups.

Learning Outcomes:

1. When students finish this activity, they will be familiar with the relationship of the equator to the Tropic of Cancer and the Tropic of Capricorn; the Arctic and Antarctic Circles; and the North and South Poles and how they are represented on a globe.
2. The students will also practice working in pairs and following the rules for correct use of world globes.
3. Students learn some of the nations that are located along the equator.

Essential Elements; Social Studies, Grade 6:

5B describe population patterns of the world

5D locate and describe landforms and climates of various regions

5E describe how the geographic regions of the world are similar and different

5G use longitude and latitude to locate sites on maps and globes

Fundamental Geographic Themes:

Location

Place

Regions

Related Learning Opportunities:

Language Arts

Math

Earth Science

Classroom Procedures:

1. Before class, prepare the room: place a strip of red plastic tape along a horizontal line from side wall to side wall in the middle of the classroom floor. This will represent the equator. Place two strips of blue plastic tape on the floor along the end walls (parallel to the red line) to represent the Poles. Then, dividing the space between the red and blue lines, place two yellow strips of tape to represent the Tropics of Cancer and Capricorn, and two green strips to represent the Arctic and Antarctic Circles. A globe should be displayed in the room. Have an overhead transparency (master is included) ready with questions for the students.

2. When the students enter the room, they will notice the tape on the floor sparking many questions and serving as a "hook" or motivator for the lesson. The students should put their usual heading (name, date) a clean sheet of paper with a pen, and put all other materials away.

3. Begin by explaining that today we will have an introduction to globe skills. Discuss the concept that a globe is a more accurate representation of land and water forms than a flat map.

4. Review concepts of latitude that the students have already read or discussed. Point out that the equator is an imaginary line that encircles the Earth, halfway between the poles. Ask the students, "which one of the lines on the floor represents the equator?" They will answer, "the red one." Then ask, "everyone whose chair is on the equator raise your right hand." The students will raise their hands. **Note:** These instructions (# 4.) should be performed at a brisk pace, not consuming more than 15 or 20 minutes.

Point out the blue lines that symbolize the poles. Ask everyone sitting on the pole lines to stamp their left foot. If possible with your room arrangement, no one will be sitting on a blue line. This will give a demonstration of population distribution, which will be discussed later.

Explain that the yellow tapes represent the Tropics of Cancer and Capricorn. Ask everyone sitting on the Tropic of Cancer to clap their hands once, and then everyone sitting on the Tropic of Capricorn to snap their fingers three times. Remind the students of the kinds of climates found in tropical areas. Ask everyone on or within the two tropics to stand up. Ask one student what some of the characteristics of a tropical climate are. Have all those standing pretend to fan themselves or wipe perspiration from their brow. Now the class can sit down again.

Next, talk about the green lines-- the Arctic and Antarctic Circles. Remind the students of the climate types at that latitude. Have everyone sitting on the Arctic Circle stamp their feet twice, and then have everyone sitting on the Antarctic Circle whistle. Have all students sitting between green lines and blue lines stand up and shiver.

Mention that the midlatitudes have a more moderate climate than either the tropics or the polar regions. Have everyone sitting between yellow and green lines stand up, turn around and sit back down.

5. Divide the class into pairs to work together. Explain that the class will be locating important lines of latitude on a globe. Today the class will be concentrating on the equator. Other key lines of latitude will be featured on other days. Before passing out the globes, explain the rules for proper globe use. Some suggestions are: (A.) Globes are to stay on the desks at all times. (B.) Trace areas on the globes with a finger only, do not mark on the globes with a pen or pencil. (C.) Work quietly with your partner.

6. Students should locate the equator on a globe, tracing it all the way around with their fingers. Then they should trace the Tropics of Cancer and Capricorn, Arctic and Antarctic Circles, and they should point to each pole.

7. A transparency outlining the exercise questions (Transparency Master) should now be displayed with an overhead projector. The students work on the activity while the teacher monitors the groups. The students should stop fifteen minutes before the end of class, to verbally check the answers to the activity questions. Written answers should be displayed on an overhead.

8. For closure, have the students briefly review the major concepts of the lesson. Have all students sitting on the equator raise their right hands. All students on the Tropic of Cancer clap hands, Tropic of Capricorn students snap their fingers. Those on the Arctic Circle stamp their feet. Antarctic Circle students should whistle. Blue polar regions remain quiet. Ask, why? Students, hopefully should answer, "because nobody lives there." Class ends.

Materials:

1. Colored plastic tape (Mystic tape), in red, yellow, green, and blue.
2. Globes-- as many as are available, one for each student group.
3. Overhead projector.
4. Transparency of exercise questions and answers

Evaluation:

Teacher observation of student behavior and check of exercise questions.

Transparency Master:

The questions should be on one transparency, and, answers should be on a second transparency to overlay. The boxes should match up well.

The Equatorial Doldrums

1. List all the continents that the equator passes through.

2. List all the oceans that the equator crosses.

3. List all the countries that the equator passes through. Start with Gabon in Africa, and go east.

1.

(Africa, Asia, South America)

2.

(Atlantic Ocean, Indian Ocean, Pacific Ocean)

3.

(Gabon, Zaire, Uganda, Kenya,

Indonesia, Ecuador, Peru, Colombia, Brazil)

Activities by Subject

Map and Globe Skills:

African Treasure Hunt
Comparing Maps and Globes
Exploring Africa
The Equatorial Doldrums
The Search for Mayan Treasure

Locational Skills:

Community Planning
Putting Current Events on the Map
The Gang of Fourteen
Three Models of Urban Development
World Rally

Cultural Geography:

ABC's of Africa
Where Did I Come From... How Did I Get Here?

World Geography:

Putting Current Events on the Map

World Climates:

Climatic Pursuit
Comparing Climates
The Equatorial Doldrums
The Gang of Fourteen

Physical Environments:

Exploring Africa
Search for Mayan Treasure

Economic Geography:

Discovering How Cities Function
Three Models of Urban Development

Regional Geography:

ABC's of Africa
African Scramble
Exploring Africa
Red Squares

Early Explorers:

Exploring Africa

Africa:

African Scramble
African Treasure Hunt
ABC's of Africa
Africa in Jeopardy
Rivers of Africa

Geography and World Affairs:

Putting Current Events on the Map

Educational Games:

Climatic Pursuit
Red Squares
The Gang of Fourteen
World Rally

Geography of Cities:

Community Planning
Discovering How Cities Function

Field Trips:

Discovering How Cities Function
Zoogeography at the Zoo

The Activities:

The Gang of Fourteen
Putting Current Events on the Map
Comparing Maps and Globes
The Search for Mayan Treasure
Where Did I Come From... How Did I Get Here?
Three Models of Urban Development
Community Planning
Discovering How Cities Function
Zoogeography at the Zoo
African Scramble
ABC's of Africa
Rivers of Africa
Exploring Africa
African Treasure Hunt
Africa in Jeopardy
World Rally
Red Squares
Climatic Pursuit
Comparing Climates
The Equatorial Doldrums